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A REVIEW OF THE MEDICAL LITERATURE OF 1904.

ORIGINAL ARTICLES.

INTERNAL MEDICINE.

IN CHARGE OF

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The chief progress in internal medicine tends toward the development of more exact methods of clinical diagnosis. An effort is being made not only to render these methods more exact, but, at the same time, to simplify them to such an extent that the physician who most requires them can employ them without too great an expenditure of time. Unfortunately our most exact methods are usually very complicated. This applies especially to the clinical study of blood pressure. During the past year or two this subject has been given a new impetus and a practical value which it has not had heretofore. Though its importance has long been realized, the work done in this direction has been very largely confined to physiology and has been engaged in purely out of scientific interest. Increase and decrease in arterial tension may, of course, be recognized by the practiced touch without the aid of a mechanical device, but we know only too well that small differences cannot be detected in this manner. The sphigmomanometer has been modified and simplified until now it can be employed with little loss of time. This innovation has been received with enthusiasm by internists. Since the introduction of the sphigmomanometer in 1855 by Vierordt, a certain importance has been attached to the indication of the blood pressure, but the methods were entirely too complex to permit of its general use. Since this time various efforts have been made to simplify them in order that they might become adapted to clinical purposes, but only in the last year or two have they been rendered practical. There is no doubt now that the sphigmomanometer will occupy as important a place in the physician's armamentarium as does the thermometer. There was a time when the temperature was approximately determined without the use of the ther-

mometer. We now wonder how such a thing was possible. There is little doubt that the time will come, and in the near future, when the same will exist with reference to the recording of the pulse. Of course palpation of the pulse will always be in vogue and will be employed as a routine measure, just as the laying on of hands is still employed to determine, in an approximate way, whether there exists an elevation of temperature. However, in taking the pulse in this manner, we depend entirely upon the muscular sense and this is too variable a quantity, being developed more highly in some individuals than in others. All manner of modifications have been made in the old sphigmomanometer of Vierordt; those of Basch, Marey and Mosso stand out most prominently. They utilized the principle of determining the pressure at which the pulse wave was obliterated, thus obtaining the systolic pressure. The same principle has been employed throughout, but instead of being applied to the finger, the principle of circular compression is used about the arm. The introduction of Riva-Rocci's instrument has perhaps done more toward rendering the determination of blood pressure a practicable procedure than has any other factor. The sphigmomanometer, in order to be useful to the physician, must be reasonably accurate, free from objectionable errors, easily applied and portable, all of which have been accomplished in the recent development of the appliance. Those which seem best fitted for general use at present are those of Riva-Rocci, Cook, Janeway and Martin. Among the recent important contributions on the subject are those of Gaertner on the determination of the pressure in the right auricle as a new clinical method, of Peters on the same subject, of Frank on the direct registration of the heart sounds, of Frey on venous pressure and of Cushing on blood pressure, etc.

Though the year has brought forth no marked advancement in the methods of diagnosis of cancer of the stomach and of ulcer of the stomach, it will no doubt be well to point out here the great importance of such in the light of recent developments in the surgery of the stomach by such surgeons as Mayo, Moynihan, Mikulicz, Ochsner and others. The recent accomplishments of the surgeon in gastric surgery have been little short of marvelous. In ulcer of the stomach gastroenterostomy has given such excellent results that it seems to be the rational treatment in all of those cases in which systematic treatment has failed to produce a cure or in those which have been "cured" several times and have undergone relapses. The mortality following gastroenterostomy in benign cases of ulcer has been reduced to such an extent by the improved technique and skill of the surgeons that it need not be considered more dangerous than laparotomy performed for any other purpose. We are compelled to concede that the medical treatment of chronic ulcer has not been altogether satisfactory and that we as internists have made but comparatively little progress in that direction during the past year or

two. Where we fail, therefore, we should have no hesitancy in calling upon the surgeon.

A great difficulty arises here, however, with reference to diagnosis. There are many cases of chronic ulcer of the stomach which do not present the cardinal symptoms pointed out by the text-books, and are in so far atypical; on the other hand, disturbances of a functional nature often simulate ulcer; therefore, if we would not bring stomach surgery into disrepute, we must use every care in the matter of diagnosis before referring these cases to the surgeon. In no case should operation be recommended until the case has been carefully observed in a systematic way. There is no doubt that many cases of so-called gastric neuroses will not only reveal the scars of old ulcers, but will also be relieved of many of the unpleasant symptoms by gastroenterostomy.

Unfortunately, this year has brought us no nearer to the solution of the early diagnosis of carcinoma of the stomach than we have been heretofore, though a new impetus has been given to this subject also by the admirable work done in this direction by the skilled surgeon. The surgeon has always complained, and justly so, that the internists either failed to recognize early cases of carcinoma or considered them hopeless from the moment the diagnosis was made. Recent statistics show the latter belief to be unfounded. It is true we cannot feel absolutely sure of the existence of cancer of the stomach until the tumor can be palpated; however, we can feel sufficiently so to justify a probable diagnosis. If one waits until a tumor can be felt in order to establish a diagnosis, then the claim of the surgeon is entirely justified, and this delay is in a measure to blame for the great mortality following operations for cancer of the stomach. If satisfactory results are to come from stomach surgery, then no means should be spared in making as complete a diagnosis as possible by our present methods. If there be still doubt, then an exploratory operation should be recommended. The general consensus of opinion on this point is that it is far better to explore in vain than to defer too long.

In an effort to simplify the Gruber-Widal reaction as a diagnostic measure in typhoid fever, Ficker has produced a modification of this method which promises to replace the Widal reaction. When a method has been rendered as indispensable to the general practitioner as has this, it should be made as accessible to all as possible. Ficker considered his efforts in this direction especially called for, inasmuch as bacteriological methods, in spite of the progress that has been made in them, has not directly helped the practitioner. Most of the methods have been so complex that they cannot be carried out without a deep knowledge of bacteriology and without a complete bacteriological laboratory. Physicians at most have been able to make examination for gonococci and for tubercle bacilli in the sputum. Even the latter examinations, as usually employed, are worthless unless the result is decidedly positive. The

negative findings in the examination for tubercle bacilli as conducted by the practitioner, are without value. The results indicate simply that in one or two hundred fields of a milligram of sputum spread over a microscopic slide there are no tubercle bacilli. In order for this method to give positive results there must be 20,000 tubercle bacilli in a gram of sputum, and when this is the case sufficient clinical signs are present to permit of a diagnosis without the bacteriological examination. This explains, according to Ficker, why bacteriological examinations are of so little value to the practitioner. Nearly all of the methods of diagnosis depending upon bacteriology depend upon a well equipped laboratory and are very tedious. The importance of such an examination is indicated in the demands for bacteriological stations. This indicates, too, that typhoid fever is not easy of detection at the bedside, especially for young physicians, who have seen but few cases during their three to five years at college.

In order to render the Widal reaction more practicable, he considered the following points necessary: 1. The necessity of using the living typhoid culture must be overcome, in view of the fact that it requires a complete equipment for that purpose. 2. This preparation, free from living typhoid baccilli and containing the specific agglutinating substance, must keep well. 3. During the time of observation there must be no tendency to spontaneous clarification. 4. The reaction must be visible to the naked eye, and the end reaction must be constant. 5. It must not require, as does the Widal reaction, the constant attention of the observer through a period of two hours. 6. The reaction must take place in the temperature of the room without the necessity of a culture room. 7. The preparation must be influenced in exactly the same way as in the suspension of living bacilli.

Ficker has succeeded in producing a fluid which he claims takes the place of the living typhoid culture, and which fills all the above requirements. This substance, however, requires very careful preparation and is practically a suspension of dead bacilli. It is a slightly cloudy, sterile fluid which, in a dark, cool place, will keep for a long period of time. Blood serum is obtained from the patient and diluted ten times with sterile saline solution; with graduated pipettes 0.2 and 0.1 c. cm. of this dilution is placed in glasses No. 1 and No. 2, containing 0.8 and 0.9 ccm. The third glass contains the so-called "diagnosticum" without the blood serum. The tubes, the contents being thoroughly mixed, are permitted to stand ten to fourteen hours—longer than twenty-four hours is never permissible. The positive reaction manifests itself in a clarification of the fluid and an agglutination of the tubercle bacilli in the center and bottom of the glass.

Gramann made a series of careful investigations relative to the Ficker serum diagnosis of typhoid fever and the results of his series were very satisfactory. He states that before it can be accepted as absolutely

reliable and constant, it must be tried in the so-called abortive, paratyphoid and convalescent stages.

Meyer reviews the disadvantages of the Widal reaction, and sums them up in the statement that inasmuch as the agglutination does not appear in the blood for several days after the inception of the disease, the serum reaction often gives no clue at the time when the difficulty of diagnosis is the greatest. This reaction is not an absolutely specific one but in a great degree a relative one. This is shown in the fact that the blood of some cases of undoubted typhoid presents a negative reaction, while the blood of others that have never had typhoid gives a positive reaction. A proper performance of the reaction requires very complicated apparatus and careful technique. In view of the latter fact he made a series of careful observations concerning the value of the Ficker reaction. He finds that it overcomes this last objection nicely by simplifying both the technique and the requirements, inasmuch as there are required for this reaction a suspension of dead typhoid bacilli, some physiological salt solution, a pipette and a few test tubes. In order to determine the value of this reaction as compared with the Widal, he made examinations of the blood of typhoid and non-typhoid cases, of the blood of the living and of the dead and the blood of animals. He found the results of the two reactions practically identical, and concludes that "the Ficker reaction not only leads to the same results as the original Widal reaction, but for theoretical and practical reasons is to be preferred, and is, therefore, to be highly recommended to clinicians and practitioners."

Radzikowski also tried the value of Ficker's method and found the results very satisfactory. In every case in which the Widal reaction gave positive results, the Ficker method did likewise, and *vice versa*. In six cases four tests were made with the usual microscopic Widal reaction, with virulent typhoid bacilli in the hanging drop, in a dilution of 1 to 50; the microscopic Widal, with bouillon in dilutions of 1 to 50, the modification of Ficker, with the "typhus diagnosticum" dilution 1 to 50, and the same in a dilution of 1 to 100. These tests were made in different stages of the disease in the second and third weeks, in relapse and in convalescence. He finds the tests possible also in the dried blood specimen. The serum of individuals who were not afflicted with typhoid never produced agglutination in dilutions of 1 to 50. He believes it can replace the virulent culture used in the Widal reaction and that it has great advantages over it.

Ehrson finds the "Ficker typhus diagnosticum" quite reliable in every particular, occurring in three to twenty-four hours in typhoid and not occurring at all in other febrile conditions. He reports a very interesting series of cases and praises the method highly.

Different methods have been employed in obtaining the blood serum. Ficker himself recommends cupping and incision, collecting the blood in a specially adapted test tube.

Gramann considers the cupping tedious and unnecessary and obtains the blood from a simple incision.

Blum removes 1. c.c. of blood from a vein of the arm through a sterilized syringe and permits the expression of the serum to take place in the inverted syringe. It is then drawn off with pipettes.

Clamann collects the blood from an incision, sucking it into a syringe, permitting it to coagulate in the inverted syringe and then expells the serum into a sterilized test tube.

Kreissl believes that the positive result of the Widal reaction points with the greatest probability to the existence of typhoid fever, providing the existence of a previous typhoid can be excluded. The negative reaction does not speak with absolute certainty, however, against typhoid. The procedure has a special significance in light cases that do not permit of diagnosis from the clinical symptoms alone. He considers that his experience justifies the conclusion that the Widal reaction is an early diagnostic aid. No conclusion as to the character or severity of the disease can be drawn from the degree of agglutination. He finds that the agglutination of typhoid bacilli from the roseola spots gives fairly good results though not infallible.

Lubowski and Steinberg found the Widal reaction positive in otitis media, due to the proteus, staphylococcus and streptococcus infections, in dilutions of 1 to 80. Investigations showed that in nearly all cases of proteus infection there was an agglutination of typhoid bacilli; a similar agglutination was noticed in staphylococcus infections, but not in the streptococcus infections.

Since the reports of Gruenbaum and Koehler in reference to the agglutination of typhoid bacilli by icteric blood, a large series of reports have been presented which varied greatly in their result. Koehler considers taurocholic acid an agglutinating body and claims to have gotten positive results in a dilution of 1 to 60. Many observations have been recorded since these publications and, though there is still a variety of opinions, the preponderance of evidence is opposed to the theory that the bile itself possesses any such qualities.

Kemerer thinks there is no justification for this belief. In fifty cases he could not satisfy himself that the presence of bile pigments and acids in the blood produced the reaction and in only two cases did he succeed in getting the reaction at all in dilutions as great as 1 to 40, and in only one case in a dilution of 1 to 75, In 94 per cent. he had negative results. Koehler stated that according to his own investigations the Widal reaction had lost materially in reliability as a diagnostic aid in typhoid fever, basing this statement on the belief that icteric blood produces agglutination. Kemerer, on the other hand, concludes that icterus very seldom produces agglutinations in dilutions of 1 to 40 or over, that the Widal reaction, and especially the Ficker modification, is still our most reliable aid for the differential diagnosis of abdominal typhoid,

and that in all probability the agglutinations occurring in dilutions of 1 to 100 or over were practically specific for typhoid.

Steinberg, in a series of investigations on this phenomenon, concludes there is no constant relationship between the presence of icterus and the agglutinating action of the blood on typhoid bacilli. A marked number of cases in which icterus existed from various causes gave no reaction whatever. This would indicate that the constituents of the bile have no agglutinating qualities.

It is stated by Eckardt and Koenigstein that the bile as such does not possess agglutinating qualities. It would seem, therefore, that where agglutination occurs in icterus, it is due to factors accompanying the condition and not to the presence of bile in the blood.

While it is now pretty generally conceded that the Widal reaction and its modification by Ficker are most reliable methods of diagnosis of typhoid fever, there are still serious objections to be raised on account of the late period at which it is possible to obtain positive results.

Koch does not consider the Widal reaction an early diagnostic aid and recommends the examination of the feces by the Drigalski and Conradi method. The culture media recommended by them is stained with litmus; when inoculated with feces, the acid-forming colonies of the colon bacilli are distinguished from the alkaline of the typhoid. In this manner the diagnosis has been made as early as the second day. The value of this method in the prevention of the spread of the disease he considers very important. Since the disease is communicated only through the excreta from human beings, it is very important from the standpoint of the hygienist that the presence of the disease be detected as early as possible in order that necessary precautions may be taken.

Herbert examined the excretions of ninety-eight convalescents; the urine 228 times and the feces 216 times. Typhoid bacilli were found in the urine of 18 per cent. and in the feces of 3 per cent. of the cases. They were present in very large numbers in the urine and in very small numbers in the feces. In the cases in which the findings were positive, four were severe, eleven moderate and three very light. It is of great practical importance to know that the bacilli are so often found in the urine of the convalescent during the first four weeks. The length of time intervening between the last of the fever and the disappearance of the bacilli from the urine is from eight to twenty-seven days. In the second month of re-convalescence the excretions, with but one exception, were free from bacilli.

Steffanelli and Cumbo examined the urine of twenty-one cases of typhoid, and found the bacilli in seven. In three of the cases bacterium coli were found. The presence of typhoid bacilli in the urine does not necessarily go hand-in-hand with albuminuria. In the blood of sixteen cases, the bacilla were found in six. In four punctures of the spleen there was one positive. The bacteriological examination of the urine

has a diagnostic significance, but the value of the examination is lessened by the difficulty of determining the identity of the bacilli with the Eberth bacilli. Examinations of the blood in the hands of Rosenberger, Courmont and Lesieur, Ruedinger and others have had excellent results. It is possible that the bacilli are present in all cases, and have been found in a large majority of those examined. In most cases they may be found before the Widal gives the positive reaction.

As to the relative value of the various diagnostic measures, namely, the Widal reaction, the Ficker reaction, the examination of the feces, of the urine, of the blood and of the roseola spots, the probabilities are that in spite of the period at which the test is positive the Ficker will prove the most popular because of its simplicity and the ease with which it may be carried out by any physician, regardless of his knowledge of bacteriologic technique.

Considerable work has been done in paratyphoid fever, and the disease is now practically considered an entity. It has been differentiated from typhoid fever through bacteriological examinations, and is found to be due to an organism standing, as it were, between the typhoid bacillus and the bacterium coli. The course of the disease is mild, the prognosis good and the treatment the same as typhoid. At the present time the disease must be considered, according to Keith and Scott, a general acute infection, in which there are no definite local lesions.

Germann believes that leucopenia, which usually exists in typhoid, has a diagnostic significance and can be utilized as a diagnostic point. The decrease of leucocytes is at the expense of the polynuclear leucocytes, the mononuclear leucocytes being somewhat increased. Polynuclear leucocytes in a febrile typhoid would speak, therefore, for a complication of some sort. The eosinophile cells, which practically disappear during the acute stage, reappear in the convalescence. Their reappearance, therefore, is to be considered a favorable sign. He believes that the increase of eosinophiles in doubtful cases excludes typhoid. In connection with the serum diagnosis and Ehrlich's diazo reaction, leucopenia at the expense of the polynuclear cells is of great significance.

Kost and Gutig found leucopenia in 92 per cent. of their typhoid cases. They found it also present in measles, Banti's disease, tuberculosis of the lungs, malaria and severe anemia; however, these are conditions which are rarely confounded with typhoid, consequently the presence of leucopenia does not affect its importance in the differential diagnosis of typhoid.

Stein and Korte found that while the blood serum of typhoid reconvalescents exerts no immunizing influence against typhoid, a large series of cases showed that the serum of the febrile stage or the stage following has a bactericidal action in 1 to 1,000 dilutions, and in many cases in a dilution of 50,000. They suggest that this method might be

used in the diagnosis of cases in which the Widal reaction is not satisfactory, and that it would have the advantage of permitting a series of examinations to be started within a half hour and results to be obtained within eight hours.

Shiga made a series of examinations in the active immunization of human beings against the typhoid bacillus, utilizing himself as a subject. He succeeded in producing in himself the antibodies, and would place great significance on this fact. The investigations are too meagre, however, to permit of definite conclusions.

Einhorn applied the serum treatment to a number of cases, and reports his results as very satisfactory. Though his material was too small to permit him to come to far reaching conclusions, he corroborates, in part at least, the conclusions of Jez. He finds that while it does not shorten the disease it does improve the general condition. The sensory and nervous symptoms are especially much improved, sleeplessness, headache, restlessness, delirium, etc., disappear. He believes the treatment is already of value, but that we will soon have more potent sera.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

It cannot be claimed for the year which has just drawn to a close that it has seen the advent of any new idea which will ever rival in importance hæmostasis, anesthesia or the Roentgen light; still there is much to recount which marks the steady advance of the science and art of surgery, much that will benefit mankind through the relief of suffering and the prolongation of life. While, perhaps, no epoch-marking discovery has been made during the past twelve months, still work of more than ordinary merit has appeared, and it is far from the reviewer's purpose to discredit or even belittle the same by the comparison with which this chapter opens. In a resume of this length, it is not possible to even refer to all of merit that has appeared, and even if it were, still it would hardly be in keeping with the idea of a "progress number" to review papers which do not bring out something absolutely new, mark advances in lines of thought already established, or at least treat of maladies seen so rarely as to be matters of more than usual interest. Such a rehash can further not be complete when viewed from the standpoint of each and every reader, because the reviewer is sure to give his attention to the material which is of greatest interest to himself, and, again, the thoughts which appeal to him as new or especially noteworthy may seem by no means so to him for whose eyes the finished product is intended.

In a general surgical way, the observations of Peterson on chronic pyemia are of interest. He saw one such case drag over two years of suffering, the various lesions having their origin in feruncles on the neck, these containing the staphylococcus albus. Metastatic abscesses formed in the kidney, foot, both lower legs, as well as an osteomyelitis of the vertebral body and an empyema of the knee. Kausch developed some valuable ideas bearing upon the relation of diabetes to surgical possibilities. He says that ether is by all means the anesthetic for these individuals; that it must be given early in the morning, and that the urine must be made alkaline before any operation is to be attempted. Some rather astonishing reports are made by Jordan regarding late recurrence in cancer. He tells of one on the tongue as late as ten years after the first operation, and another of the breast, in which repeated operations have been done during the past fifteen years, with the patient now apparently healthy. The old question of how best to treat subcutaneous fractures receives an added interest from a recital of the experience of Fritz Koenig, who opened up and wired a number at the expiration of the first week. He had no infections, and saw none but perfect results, the procedure being undertaken when the x-ray showed that a perfect reposition could not be expected by other means. v. Mangoldt met with marked success in the transplantation of detached bone-periosteum flaps, succeeding thus in curing a pseudarthrosis as well as in repairing various bone defects. It is commonly thought that fracture of the neck of the femur is essentially a lesion of the aged, still Lammers was able to demonstrate with the x-ray the fifth authentic case under the age of twenty, his patient being a boy of four and a half.

After examining four hundred cases Reich came to the conclusion that a leucocyte count is by no means an absolutely reliable guide in every case. Where there is a high temperature, with normal number of white cells, it is rarely a suppurative trouble; they are inconstant in malignant tumor cases, but may be of great value in determining the cause of a complication after operation. Vischer made experiments in inoculating a melano-sarcoma, with results which at first seemed conclusive. He produced small pigmented tumefactions in the peritoneum and other tissues, but none of the animals died. The microscope showed these nodules to be merely granulomata, in which the sarcoma pigment was retained, the cells having disappeared. Kelling believes that he has solved the problem of malignant tumor formation by the process of biochemistry. He considers these tumors made up of cells foreign to the human organism, and by introducing portions of mascerated chicken embryos into the veins of dogs, claims to have produced something like malignant adenomata in liver and lymph nodes. Most authorities take the stand that cancer cannot be transmitted, but Dagonnet believes that the many negative results are due to mechanical errors, since he claims to have reproduced in animals tumors and metastases which had a struc-

ture identical with growths taken from the human body. The very interesting combination of cancer and sarcoma in the same individual, which had been reported but eleven times in all the history of surgery, occurred for the twelfth time in a case reported by Haberer. There was a sarcoma of the epiglottis, and a cancer of the tongue made its appearance eighteen months later. Something of more than usual interest in the line of cancer inoculation is contained in the report by Wilmanns of a case in which a cancerous tonsil was removed through the most direct route, the jaw being sawn in two at the angle; all other tissues remaining healthy, the growth reappeared some years later in the saw cut, and is regarded as a direct implantation.

From the standpoint of surgical bacteriology, much that is interesting and instructive has appeared. Wyss, from Kocher's clinic, reports the discovery of a new germ, capable of producing osteo-myelitis. It is anaerobic, and from its peculiar appearance, having a halo surrounding it, has been named "bacterium halosepticum." Bertelsmann made the very interesting experiment of examining the blood of two hundred and thirty patients for bacteria. The result was negative in most cases of lymphangitis, erysipelas, peritonitis, etc., while germs were usually found in tendon-sheath phlegmons, acute osteo-myelitis and empyema of joints. He examined four patients suffering from urethral chill, with a positive result in two cases.

The weighty practical matter of cleansing the hands is interestingly treated by Sikemeier, who found a vast difference in the number of bacteria on the hands before and after a brush was used in washing. In some cases he succeeded in producing absolute sterilization simply by using the brush and washing in soap and running water.

To what was written above on diabetes may be added the results of a study on thirty-three cases by Koerner. He divides these into light, moderate and dangerous cases. None of the first, but one-half of the third variety died after surgical intervention; hence he concludes that the disease in a mild form is no contraindication to an otherwise indicated operation, but that surgery is to be practiced upon the severer cases only when a vital indication is present.

The pathology of circulation has received more than the usual share of attention devoted to it, and many cases have been cited to show this or that anomaly. The results of 147 Trendelenburg operations for varicose veins, done at the v. Bruns clinic, cannot fail to be of interest. In only 27 per cent. was the result perfect in every particular from the anatomical standpoint. Still the patient experienced partial or complete relief from suffering in a much larger number of cases. In fact, there was only 16 per cent. in which it could be said that there was no improvement. Vatter reports a most unusual arterial lesion. A man was kicked on the upper abdomen by a horse; there were all the symptoms of an internal hemorrhage, so a laparotomy was undertaken and

the abdomen found well filled with blood. At first a careful search failed to reveal the source of the bleeding, until finally it was seen that the right gastro-epiploic artery had been torn in two. This was ligated and the patient recovered. This singular injury was complicated by nothing more than a small tear on the under surface of the liver. Every surgeon has had sad reason to be interested in the embolic pulmonary affections which complicate abdominal operations now and then, hence the article of Gebele cannot fail to arouse interest. He found that 6.43 per cent. of the 1,196 laparotomies performed at the Munich clinic in ten years were complicated in this way. He experimented upon forty rabbits in order to determine, if possible, what operations predispose to this complication, and in what way emboli reach the lungs; coming to the conclusion that no especial procedures entail this danger more than others, but that all may be followed by its appearance. Germs, but not emboli, can pass through the liver from the portal system; still a broken-down liver focus may indirectly lead to the transport of a tissue embolus to the lungs. It was formerly supposed that formation of an aneurism must intervene before an atheromatous artery could burst spontaneously; but this idea is controverted by the experience of Walther, who operated upon a man two weeks after a sudden attack of pain with swelling of the thigh. He found a simple tear 1½ cm. long in the femoral artery; no aneurism was present, though the vessel showed signs of endarteritis deformans.

Smith wrote to a large number of American surgeons asking for their experience in the accidental injury of the axillary vessels during breast operations. He sums up the result as follows: Very little harm results from injury to the vein, though suture or lateral ligature is to be employed where the injury is not too large. Injuries to the axillary artery are so rare that its effects are not well known. (The reviewer had to excise a two-inch section of the artery for carcinomatous involvement in one case, with no ultimate bad result; there was temporary coolness of the member and absence of the radial pulse.) A unique case which illustrates one of the now well-known dangers of paraffine injections, is reported by Hurd and Holden. During an attempt to correct the shape of a nose into which paraffine had been injected, an embolus was produced and thrown into the central artery of the right retina. All attempts to force out the obstruction by increasing the blood-pressure were without avail. This is the second case of its kind.

In the consideration of suture materials, the various absorbable ones have continued to receive more and more attention. As a substitute for kangaroo tendon it has been proposed that we use the long leg tendons of the various species of crane which abound almost everywhere. Thus we shall have the advantage of securing a smooth, long strand, one easily obtainable, and one which is absorbed in about the same time as that first named. As usual, catgut has been more used than all the

other suture materials put together. The Claudius method of sterilizing it in iodine has been a disappointment to most who have reported its use, from the fact that the gut has deteriorated after lying awhile in the fluid; to remedy which defect it has been proposed that we substitute 60 per cent. alcohol for the water in the solution. It seems probable that this will give the desired results to those who are satisfied in using a suture which has been treated only chemically. Catgut deserves its prominence in the surgical armamentarium from the fact that it is rapidly absorbed. Still it has seemed desirable at the Mikulicz clinic to make it last two or three months in hernia and similar operations, something which has been accomplished by immersing it in a 5 per cent. watery solution of quebracho for twenty-four hours.

Anesthetics have not received the amount of special notice which they did a year or two ago, when so much was written concerning the various mixtures of chloroform and oxygen. Simon states that eucain has taken the place of cocain at Heidelberg because it is so much less dangerous, though equally as effective. Furthermore, it is used in conjunction with adrenalin, 1 to 20000, as proposed by Braun last year. Thus the efficacy of the drug is increased without any ill-effect. Prescot advises nitrous oxide and oxygen for anesthesias of a duration even up to one hour, though it is hardly likely that this method will ever become general on account of the great trouble and expense of giving it. Gant has recently advocated a sterile water anesthesia for office practice in rectal diseases. He claims that injections of water suffice for a local pain destroyer, in short, simple procedures.

In comparing ether and chloroform as far as the West is concerned, it can be well said that ether is making more and more friends at the expense of the other drug, though there was a time when chloroform was used throughout this section to the practical exclusion of other anaesthetics. The reviewer belongs to those who consider ether best administered by the drop method of Witzel or Witzel-Hofmann, *i. e.*, on an open gauze mask, just as chloroform is used. Kemp and Gardner made some very interesting experiments on resuscitating dogs after death from chloroform, using the well-known method of laying bare and compressing the heart. Their method consisted of four steps: (a) Two quick compressions of the heart for each systole; (b), animal lying on the abdomen; (c), artificial respiration with the air-pump; (d), saline infusion. By working forty minutes they succeeded in reviving one animal as long as sixteen minutes after the heart had ceased to beat; however, all their experiments ended fatally within twenty-four hours, because of pneumothorax or post-operative haemorrhage. Similar methods are advocated for the human, though there is no record of cardiac compression having been successful up to date, it alone having been tried.

After 200 skopolamin-morphine anaesthesias, Korff concludes that

0.001 C. Cm. of the former drug and 0.025 of the latter, in broken doses, beginning two and a half hours before the operation, can take the place of any other general anaesthesia. There is no danger, but the effect on different persons is very different. There is no vomiting, and food can be taken as soon as the patient wakes. Occasionally some ether or chloroform must be used in addition.

What seems to be a logical suggestion looking toward the furtherance of nerve repair, comes from Foramitti, who removes arteries from animals and then sews them around the site at which a divided nerve trunk has been united. Animal experiments showed that such a casing prevented the nerve from becoming embedded in a mass of scar tissue growing from the vicinity. Very faint adhesions to the intima were produced, and in consequence of the efficient support thus offered for repair, the method is advocated for the human subject.

Our consideration of the surgery of the head opens with an article by no less an authority than Sir W. Macewen. Writing on the cerebral invasion of pathogenic organisms, he tells us that intra-cranial infections are metastatic in origin in only a small per cent. of the cases; very much oftener there is a direct progress of the infective process by contiguity of affected tissues. This is shown by the fact that infections from the middle ear much oftener cause a basilar meningitis than a brain abscess. Kiliani proposes to reach tumors of the optic chiasmus through raising an immense Wagner flap, having its base at the coronal suture and its convexity reaching to within one-half inch of the root of the nose. He was unable to reach such a growth through an ordinary opening in the right temporal region. In keeping with the trend of modern surgery is the proposition which is now made to treat purulent meningitis in the same way that pus under tension in any other part of the body would be dealt with, viz., by free incision and drainage, a procedure which Hinsberg states has saved twelve lives. It is interesting to note the results which time will bring forth. Every surgeon has been perplexed by the bleeding which so frequently accompanies the making of a scalp flap; hence, every one will be interested in the proposition which Prof. V. Hacker makes for the avoidance of the same. It is to run a series of ligating sutures clear around and just outside the contemplated incision. These threads are to be removed at the time the sutures necessitated by the incision are taken out.

One can hardly imagine any more frightful self-inflicted injury than tearing out of the tongue; strange and unreal as it may seem, such a case is reported by Brouardel as having been seem by him. The patient was a hysterical woman, who tore out all but about an inch of her tongue, in drawing it out for the relief of a respiratory spasm. Bleeding stopped spontaneously, speech was fairly well preserved and the patient made a perfect recovery. A complete hysterical anaesthesia was present in this, the only case of its kind in the literature. The geo-

graphical distribution of hare-lip and cleft-palate were carefully studied by Murry, who found that these anomalies were most frequently seen among the peoples of India, China and Java. In Central Africa and in certain islands of the Southern Pacific, they are, on the contrary, very seldom seen. There can be no doubt that certain families are more often afflicted than others. Langemak experimented on the changes that are possible in salivary glands after stoppage of the efferent duct; finding that stagnation of the contents alone was capable of causing atrophy of gland substance, together with an excessive overgrowth of the connective tissue stroma. It had been suspected that inflammation might be necessary to this process. Investigations recently completed by Biaghi may have an important bearing on certain skull operations. He determined, experimentally, on dogs and rabbits, the fate of transplanted bone flaps after the removal of periosteum, dura, or both. Periosteum has more to do with regeneration than has dura, and after the removal of both, it takes place very slowly indeed. Resorption and regeneration are interdependent, so a suitable prosthesis for skull defects must take the former process into consideration.

In the Prague (German) clinic, resection of the carcinomatous lower lip has given 80.2 per cent. of cures; certainly a most desirable result. This is attributed by Ebel to the fact that the "vizier plastic" with systematic gland excision is employed. This well-known form of operation allows of the widest primary excision and entails the minimum deformity.

The most notable contribution of the year to the surgical treatment of exophthalmic goitre was that of C. H. Mayo, who related an experience of forty cases. Among these there were six deaths; two, however, in patients whom the author says should not have been operated upon. Mayo's position on the question of anaesthesia differs from that taken by many surgeons at the present time, however, it must be admitted that an experience like his entitles him to opinions of his own. He states that he uses cocain for some of the bad cases, but can detect no difference as regards shock or thyroidism, if a local or if a general anaesthetic be used. After removal of an exophthalmic goitre the wound is to be drained as completely as a septic one would be, on account of a leakage of thyroid secretion. Of his cases that survived operation, 508 made an immediate recovery, 353 were cured after months, while the rest were improved. The very bad cases were placed upon the belladonna treatment or x-rayed for two to six weeks before operation to prepare them. The lessons drawn from such an unusually large number of operations deserve more than passing notice.

Surely one of the most important experimental articles which have appeared for a long time is that by Lanz on the effects of extirpation of the thyroid in animals; these cover a period of ten years' work and are interesting in the extreme. A healthy hen lays an egg weighing fifty

or sixty gramms, while she can produce one of but five gramms weight after thyroidectomy. Dogs and cats quickly die in tetanic spasms after complete removal of the gland. One of the last mentioned species had live spermatozoa in his semen at the time of operation, but none at all at the autopsy. The operation was done upon thirty-eight goats with results that are striking, to say the least. Animals of both sexes when operated at less than six months of age become typical cretans and lose the property of reproduction. If one to three years are attained before the ablatition, the succeeding manifestations are all far less severe; however, such animals grow old much more rapidly than the normal. Milk secretion disappears and the breasts atrophy. This experimental work and its results form a worthy accompanying chapter for the knowledge of the human subject, furnished us by Kocher and Reverdin, that when the gland is removed men and women lose the power of reproduction; that thyroid extract will restore a man's sexual power and a woman's menses while both remain sterile. However, let a very small portion of the gland remain and the reproductive power will be greatly diminished, at the same time the children will have some of the symptoms of cretinism; however, they will be complete cretins if the same destruction of thyroid tissue takes place in the child as in the mother.

The rarity and sensational nature of intra-thoracic attacks on the oesophagus make any new proposals in this line worth reading at least. Gosset, with the enthusiasm of a Frenchman, writes of the Biondi operation as follows: Through a large opening in the left chest wall, the lower portion of the oesophagus is laid bare, then a portion of the stomach wall is pulled up into the chest through an opening in the diaphragm so that an anastomosis can be made with the side or end of the first named viscus. This rather daring procedure has succeeded upon dogs, and thus allowed the entire stomach to be removed, the duodenum being drawn up for the new union. Equally ingenious seems the idea of Exner, of treating cancer of the oesophagus by the direct application of radium to the stricture. He succeeded in causing an enlargement of the tube in every case, by adapting a capsule containing the chemical to a bougie and introducing it for twenty to thirty minutes at a time. The method has at least the advantage of directness and simplicity.

Stimulated by the service rendered by the x-ray, the removal of foreign bodies from the larynx and lower air passages has become so common as to attract little more than passing notice; in fact the steady advance of the boundaries of our surgical territory has gone on until we respect the integrity of hardly any organ or tissue. Durante, the famous Roman surgeon, proposes a new method for the excision of the larynx. He makes a triangular incision from the angles of the jaw to the manubrium sterni, elevates this, makes a tracheotomy at the lower angle, removes the larynx and sutures the edges of the skin to the edges of the

defect in the pharynx, thus allowing two skin defects to remain, one on either side. In two cases the primary results have been ideal. One of the remote dangers of tracheotomy, namely, secondary hæmorrhage, is beautifully illustrated by Taute, who has seen three patients bleed to death, one from erosion of an aortic aneurism, two others from erosion of the innominate artery; while a fourth serious hæmorrhage from the inferior thyroid vein resulted from an infection in the neighborhood of this vessel. In the literature there are found eighty-five fatal cases of this kind, veins being rarely affected in comparison to arteries.

By far the most important contributions to the surgery of the chest with which the past year is credited are those of Sauerbruch and Brauer, who, although they worked in exactly opposite directions, both accomplished the same thing, viz., succeeded in opening, at the same time, the two pleural cavities without inducing a double pneumothorax and killing the animal. The former did his experiments while the animal's chest was in a chamber from which the air had been partially exhausted, but the latter pumped air into the trachea while he worked, the internal pressure being maintained high enough to more than counterbalance the ordinary atmospheric pressure upon the exterior of the lungs with the chest open. Opinions are greatly divided as to which is the better procedure; the end result seems to be the same in both, while the latter requires far less apparatus. To the well known work of Quincke, Garre and Tuffier on the surgery of pulmonary gangrene must be added five operations by Lejars and a like number by Bazy, published recently. Each had three recoveries, certainly enough to encourage us not to let these cases simply shift for themselves, so to speak, as we did the appendicitis patients in the days when "inflammation of the bowels" covered such a multitude of sins and errors. Monod, too, reports two of these cases, both of which got well after operation.

In Scott and Le Conte's very instructive article on the medical and surgical considerations of pyopericarditis they report three out of four patients cured by operation. The point best for explorative puncture is clearly given as follows: the fourth or fifth intercostal space as close as possible to the sternum, so that both the plura and the internal mammary artery may be spared any injury.

As might be expected, abdominal surgery has seen important advances. The field cannot fail to attract the average surgeon, first of all, because work upon the abdominal viscera offers boundless opportunities for successful results, while, on the other hand, the same maladies, if neglected, can give only a doleful prognosis. One of the most remarkable lesions reported was observed by Sperling, viz., carcinoma of a loop of gut which was found in the sack of a post-operative hernia. Mikulicz proposes to cure femoral hernia by raising periosteal flaps from the os pubis and sewing an upper onto the inner portion of Poupart's ligament, while a lower one is sutured to the outer portion of the ligament. This

is recommended only for large and medium size openings. Jopson found a necrotic corpus uteri in a strangulated hernia; in searching the literature for similar cases he found that the few reported presented a congenitally deformed organ, uterus bi-cornus, etc. There seems to be no end to the peculiar lesions which can be produced by severe contusion of the abdomen. Neumann reports a case in which 150 cm. of the mesentery of the ileum was torn loose as the result of such violence. The patient recovered, however, after operation (resection in two sittings). The ill effects of burying silk ligatures was strikingly shown in a case reported by Wieting and Risa. Their patient presented himself four months after an operation for hernia, with all the evidence of a tumor in the abdomen. At the second operation the omentum was found rolled up in a mass around a pus collection in the center of which was a silk ligature, applied at the time the abdomen was first opened. How much better for the patient if an absorbable ligature had been used.

A valuable experimental article upon the digestion of meat after ligation of the pancreatic ducts in dogs was recently published by Zunz and Mayer. These authors found that the loss of pancreatic secretion was soon compensated by stomach and intestinal juices. Atrophy and sclerosis of the gland with fat necrosis took place, but no glycosuria was apparent. Immediately after the procedure the animals lost weight, but quickly regained it again. Robson, an acknowledged authority on the subject, writes that the great difficulty in diagnosing diseases of the pancreas lies in the fact that the organ is so rarely alone diseased. On account of the poverty of calcium salts there is a decrease in the tendency of the blood to coagulate in these cases, hence the author considers it a part of the necessary preparation for operation that we administer calcium chloride. The diseases of the pancreas for which Robson has operated have been inflammations, injuries, cysts, stones and solid tumors. Brentano observed a most unusual injury to the abdomen, namely, a gunshot wound of the aorta, in spite of which the patient lived seven days. A few hours after the injury a laparotomy was done, but only a small hæmatoma near the right kidney found; seven days later, as the patient tried to sit up in bed, he suddenly died. The autopsy revealed a perforation of the aorta just above the origin of the renal arteries, together with an immense retro-peritoneal hæmatoma, which had burst through into the free peritoneal cavity.

The study of the fate of articles left in the abdominal cavity must always be of interest to the surgeon. Riese had occasion to do two pelvic operations on the same woman, discovering at the second there was a cyst of the meso-sigmoideum. This he removed, and was astonished to find perfectly healed in it a sponge which he had left in the abdomen at the first operation. He gives as the possible consequences of leaving such a foreign body behind, (*a*) peritonitis, (*b*) perforation of it into an intestinal coil, (*c*) extrusion of it after abscess formation, or (*d*) it may

become encysted. With the well-known progressive spirit of the Breslau clinic, Mikulicz caused experiments to be made looking to an increase of the germ-resisting powers of the peritoneum. This was in an attempt to decrease the number of infections at stomach and similar operations, since it is impossible to sterilize the visceral contents or to prevent some slight escape of the same in handling. Intra-peritoneal injection of saline or subcutaneous infusion of nucleinic acid produces a decided hyperleucocytosis, hence protects the individual from infection. On animals this was found to be an absolute fact, while control animals died in most instances. Mikulicz tried this method upon thirty-four human subjects, with a result that all passed the dangerous first week in safety; still he draws no conclusions, because he cannot say that any would have died without it. He injected under the breast 50 c. cm. of a 2 per cent. solution of nucleinic acid, and suggests that the peritoneal cavity be flushed with saline after every severe laparotomy, thus a hyperleucocytosis will be produced, in addition to the other benefits of the methods.

Payr had occasion to observe one of the most distressing imaginable complications of laparotomy, viz.: The thrombosis during operation of omental and mesenteric veins. This commenced at the periphery and proceeded toward the center without apparent cause. A common feature of these cases was inflammation of the omentum at commencement of the operation, and while every care was taken to protect it from temperature changes, as well as from other traumata, still thrombosis took place. This change in the mesenteric veins affected cases where the gut had lain in a hernial sack, hence we have some natural suggestion as to the pathology of it.

Kuester proposes an idea in the treatment of peritonitis which certainly has the charm of simplicity and directness in dealing with the chief lesion. It is to keep the patient lying on the abdomen as much as he can stand the position, instead of allowing him to recline in the usual manner. This is directly in line with long-established principles of drainage, to say the least. The nourishment of these patients, as well as those who have undergone severe stomach and intestinal operations, is a matter of no little moment, a subject which has received renewed attention from Friedrich during the past year. As formerly, he administers 40 to 100 gramms of grape sugar per day in a 4 per cent. solution hypodermically, but now improves the idea by adding to it a 7 per cent. peptone solution, a special preparation known as pepsin-peptone (Siegfried), which is manufactured by a well-known firm of German chemists, whose title is mentioned in the original article, Transactions of the Association of German Surgeons for 1904 (Ger.). Friedrich has sustained patients in this manner alone for ten to fourteen days.

Perhaps the most substantial attest to the popularity and value of operating for gall-stone disease is the statement that one surgeon alone,

viz., W. J. Mayo is now engaged on his second thousand of these procedures, having passed the one thousand mark during the year just closed and what is far more important, having experienced a mortality of but 5 per cent. Of Mayo's first operations 728 operations in this class, 107 were on the common duct, as a report published last April states; this pointing in no uncertain manner to the fact that in experienced hands, this class of work has long since passed the point where we had done our duty when we simply sutured a gall-bladder to the abdominal wall and opened it a day or two later, leaving nature to take her course with the victim of any and every malady of the common duct which we had neglected or overlooked. Stirlin reports one of the eleven instances of subcutaneous rupture of common duct, in the literature; nearly all were in children and like the case mentioned were the result of being run over. For cleaning out the common duct, Kehr suggests a plan which is strikingly original; it is to open the tube behind the duodenum, then through a slit in the latter, introduce a forceps into the papilla vateri and onward until a sponge can be grasped through the slit above mentioned, when the instrument is withdrawn and the duct, so to say, mopped out. In three cases Kehr was able to wipe out stones and debris which has resisted all other attempts at removal. Ewald, who stands second to none as an authority on diseases of the digestive tract and its appendages, expresses the opinion that biliary colic is not due to a stretching or dilitation of inflamed ducts, but to the overintense activity of their musculature in an effort to overcome obstruction. Quenu considers the absolute diagnosis of stone in the common duct so difficult that he recommends an explorative operation in all cases where biliary stagnation has persisted for more than three months. He never sutures the duct for the double reason that fistulæ in it heal spontaneously in a short time, and drainage is often of greatest importance. Most interesting experiments were made by Ehrhardt to explain the clinical difference between the virulence of biliary and other forms of peritonitis. He made on cats an intraperitoneal biliary fistula, at the same time infecting the outflowing bile with virulent colon bacilli. On control animals he simply introduced the last named germs and closed the belly. The resulting peritonitis ran a much milder course in the first set of animals so the author comes to the conclusion that infected bile leads to a mild form of peritonitis because the presence of bile inhibits the germ activity, and the tendency to "walling off" is also thereby decidedly increased.

Nature's persistence in carrying out her own plan, is nowhere better shown than in her ultimate disposition of the stump of the cystic duct after removal of the gall bladder, as noted in the experiments of Haberer. He found that a dilitation of the cysticus stump took place, if the same were left long, until one could with truth speak of a new formed gall bladder; this same was always found filled with bile. If, on the

other hand, the cystic duct was ligated very close to the common duct, no such change in the stump took place. Of course, the practical deduction to be drawn from these experiments on dogs is, remove the duct completely when the gall bladder is taken out.

Our review of the surgery of the stomach cannot be commenced more fittingly than by referring to W. J. Mayo's article in the *Annals* for last March, on "Radical Operation for the Cure of Cancer of the Pyloric End of the Stomach." Of 1,500 stomach and duodenal cases 450 came to operation and proved to Mayo that conclusive laboratory diagnoses can be made in every case, only after the radical operation has become impossible; hence the extreme value of explorative operation. The presence of a tumor is no contraindication for radical operation, and the history of ulcer may be an important factor in the diagnosis. The technique by which Mayo now removes the pylorus and adjacent tissues, is beautifully illustrated and given more in detail than elsewhere obtainable. At the time of publishing this article forty-one such operations had been performed by the writer with seven deaths; none among the last eleven, however.

An American proposition, the McGraw ligature gastro-enterostomy, after experimental investigation on nine dogs at the hands of Tiefenthal, receives an enthusiastic commendation. The original technique has been decidedly improved by the German investigator, who places the knot in such a manner that it can lie only in the center and thus cause no decubitus near the line of peritoneal sutures.

Sato succeeded in producing a secondary opening between stomach and intestine by dissecting away the tissues down to the mucosa and then cauterizing the last named; peritoneum around the wound was sutured as in a McGraw ligature operation. No opening was secured when the cautery (silver nitrate) was not used. Cunningham writes interestingly of gastric tetany, stating that the prognosis is very bad; 70 per cent. to 80 per cent. under medical treatment die, and 37.5 per cent. under surgical.

An ingenious modification of the Murphy button is that used by Jaboulay; each of the segments screws into the viscera to be united so that no suture is necessary in lateral anastomosis. Its great value lies in the rapidity with which it can be applied, viz., about two minutes, so that it is possible to perform the entire operation in seven or eight minutes. Renner found, after examining a large number of lymph nodes from the vicinity of cancerous stomachs, that the external appearance of them on the operating table was no guide to the presence of metastatic disease; small ones were often found cancerous while large ones were seen to be merely inflamed. We must, then, remove all possible nodes in every case. The suprapancreatic group are most to be dreaded, since it is impossible to remove them.

Osler calls the surgeon's attention to the importance of a condition which is characterized by intestinal colics continuing for years, to which are then added an erythema, and symptoms of arthritis and nephritis. The intestinal trouble is caused by hemorrhages into the wall of the bowel and can superinduce gangrene or intussusception. Steinthal describes cases of sarcoma of small intestine free from recurrence after the lapse of three and four years and draws the conclusion that the prognosis is not nearly so bad as it has been made out. Hepperlen proposes a new method of making end-to-end anastomosis between small intestines. He uses a gelatin cylinder hardened in formol, and makes a continuous Lembert suture with two needles lying parallel, the two threads being tied after each insertion. A most curious accident attending the swallowing of a piece of bone the size of a match, was noted by Appel. He found it had perforated the wall of a loop of gut lying in a hernial sack and lay in the fat outside, surrounded by a phlegmon. The patient experienced no trouble after the removal of it. Writing upon hysterical ileus, Schwarz tells of a girl who presented all the symptoms of a complete stoppage, hence was opened but nothing found to explain the condition. For two months a chronic ileus persisted, with no stool for twenty-two days once, but the patient recovered. The author regards this as a case of simulation, since the mother and sister of the girl died of real mechanical ileus. One could hardly think life possible with less than 90 cm. of small intestines functionating, but such a case is reported by Vanverts, who implanted the jejunum into the sigmoid, for the cure of a fecal fistula. The patient has gained ten pounds since the operation and is otherwise doing well. C. H. Mayo's valuable article on cancer of the large bowel, inspired as it is by the author's immense experience, deserves a careful reading at the hands of every surgeon. He subscribes to the value of the Mikulicz principle of a "two-sitting" operation, especially in the presence of ileus, where a resection is undertaken; but he improves upon the technique already in vogue at the Breslau clinic, and sutures the colon end-to-end for three-quarters of its circumference, leaving the other fourth for a temporary fistula to be closed later. The advantage of the method is apparent.

A vast amount has been written as usual regarding appendicitis, though little that is absolutely new has appeared; possibly the most important truth that has been urged by Alapy, Spieler and other writers during the past year has been with regard to the disease in childhood. They have called our attention to the fact that the symptoms, at this time of life, are far too mild to indicate the actual severity of the anatomical condition; something which the internist especially has been slow to recognize.

The surgical treatment of cancer of the rectum is gradually approaching a position of certainty, with regard to prognosis as far as operative mortality is concerned; and since improvements in operative technique are

in a large measure responsible for this desirable progress, every new proposition looking to this end deserves consideration. Hofmann, after doing a combined abdominal and posterior removal of the rectum and anus, waives all the difficult procedures looking to the establishment of a mechanically perfect new anus, contenting himself with simply drawing down the sigmoid, placing it in the median incision just behind the normal anal opening, and allowing it to retract about one inch inside the skin edge, with iodoform gauze packed around it. Thus he gets a large granulating surface, and contractions which, together with the natural tendency of the buttocks to cover the wound, are sufficient in most instances to afford continence for hard or semi-solid feces. Of course the time saved at the operation is considerable. Schloffer has produced a strong article supporting the position of Kraske (recently), Mayo, Maunsell, Trendelenburg, and so many others, that opening of the peritoneal cavity is indispensable to an operation for high cancer of the rectum. He gives conclusive evidence that the laparotomy, besides facilitating diagnostic and technical work, adds nothing to the danger of the removal; in fact, the very high tumors which have been removed through the abdominal incision have given a lower mortality than any others.

Chaput proposes the simplest and most logical procedure which has yet appeared for the repair of those tears in the rectum that now and then complicate removal of the uterus—especially those which can not be easily sutured. He saved a patient by simply suturing the large anterior peritoneal flap to the anterior wall of the rectum above the new opening, thus making a diaphragm over the pelvis. Feces were voided through the vagina for a short time, after which the fistula closed spontaneously.

THERAPEUTICS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

The relative failure of the attempts to produce an antitoxin for tuberculosis has only stimulated work along other lines. Behring and his pupils, while they have failed to demonstrate the identity of the bacilli of bovine and human tuberculosis, have made some very interesting observations. By means of experiments carried out on a large scale, Behring[1] showed conclusively that cattle that had been injected once or twice intravenously with moderate quantities of human tubercle-bacilli, not only did not become tuberculous, but acquired a very high degree of immunity against bovine tuberculosis, so that subsequent inoculation with several times the usually fatal dose of bovine tubercle-bacilli failed to

produce an infection. It is very probable that the reverse is also true: that the inoculation of human beings with bovine tubercle-bacilli would produce a certain degree of immunity against human tuberculosis; but until Koch's theory that bovine tubercle-bacilli cannot produce tuberculosis in man is established beyond question, such a procedure will not be justifiable. The work of Moeller and of Friedmann with tuberculosis of cold-blooded animals is even more promising. The former[2] has isolated a tubercle-bacillus from the blindworm, which, when injected into the guinea-pig, produces only a brief local inflammation, followed by a very high grade of immunity against human tubercle bacilli. By experiments upon himself he has shown that his blindworm tubercle-bacillus is harmless when injected into human beings, and while the results of his experiments to prove the immunity produced in himself against human tuberculosis are, from the manner in which they were carried out, not conclusive, they promise much for the future. Friedmann[3] has worked with a bacillus obtained from tuberculous turtles with similar results. The next few years will doubtless produce much valuable work along these lines.

The therapeutic use of Koch's tuberculin still finds enthusiastic advocates as well as determined opponents. On the whole, the trend of opinion seems to be that, while not as valuable as was at first hoped, the injections are harmless if properly performed in selected cases and have some curative power. Loewenstein and Rappoport[4] have used this treatment upon a considerable number of cases at the Belzig Sanatorium with good results. They begin with injections of one-tenth of a milligram, and slowly increase the dose to one gram. The injections are given every three or four days, and in case of a reaction the interval is lengthened to a week. Of 189 cases so treated, only 85 remained under observation long enough for conclusions to be drawn as to results. Of 48 cases of pulmonary tuberculosis without ulceration, 35 were cured and the rest markedly improved. Of 16 cases of mild tuberculosis with ulceration, 11 were cured; while of 21 cases of severe tuberculous infection, 6 were cured. These results are distinctly better than those obtained at Belzig by any other method of treatment.

In von Schrotter's[5] clinic at Vienna tuberculin is given by inhalation as a spray instead of hypodermically. Its action so administered is said to be milder, and correspondingly larger doses have to be given. The impossibility of accurate dosage would speak against the use of this method. Another variation in the mode of administering tuberculin is that used by Rosenheim and Jacob.[6] The pharynx and larynx are cocainized, a tube is introduced into the trachea, and several cubic centimeters of a 2 per cent. cocaine solution, to which a few drops of adrenalin solution have been added, are injected into the bronchi. This abolishes the cough reflex, and the tube can be pushed down into the bronchus on the affected side. From 20 to 30 c.c. of a sterile 0.01 per cent. solution of

tuberculin are now injected into the bronchi of the diseased lung, and the patient is directed to inhale deeply for a few minutes. The strength of the tuberculin solution is slowly increased, avoiding any general reaction, until a concentration of 0.1 per cent. is reached. Jacob reports five patients in the second stage of pulmonary tuberculosis so treated and greatly benefited; their weight increased considerably, the bacilli disappeared from the sputum, and the physical signs showed considerable improvement. The injections are contraindicated where there is a tendency to hemoptysis. It is not likely that Rosenheim and Jacob will have many imitators, as the local use of tuberculin in this manner hardly seems logical.

Maragliano[7] of Genoa has vaccinated a number of children against tuberculosis, the results constantly controlled by experiments on animals. The latter seem to show that the immunity obtained by his method is higher than that following the use of tuberculin. By what he calls the "progressive" technic he commences with passive and goes on to active immunization. He first injects immunizing substances obtained from the blood of immunized animals. This stage is followed by the injection of these same substances derived from the bodies of killed bacilli, a material absolutely incapable of producing infection. The third and final stage is the injection of products of the tubercle-bacilli, also harmless. The dead bodies of the bacilli are the chief factors in this vaccination, and the aim is to produce a focus of tuberculous inflammation near the surface of the body, entirely free from live tubercle-bacilli. From this focus emanate the influences which induce the antitoxic, antibacterial and agglutinating properties, the reaction of defense on the part of the organism. His method has as yet found but very limited recognition.

At a meeting of the Academie de Medicine of Paris, held November 17, 1903, Prof. Alexander Marmorek[8] read his long expected paper, giving an account of his tuberculosis antitoxin. The article was abstracted in these columns[9] some months ago. Marmorek believes that tuberculin does not represent the true toxin of the tubercle-bacillus, but is merely a by-product formed in improper methods of cultivation. Accordingly neither tuberculin injections nor injections of the serum of animals immunized against tuberculin can have any particular curative action. In order to produce a toxin more closely resembling that produced by the disease in the human organism, Marmorek makes use of a special culture medium upon which the growth of the tubercle-bacilli may theoretically be expected more closely to resemble their growth in the human body. The toxin so obtained is injected into horses in progressively increasing doses, and after a treatment of seven or eight months their serum possesses antitoxic powers sufficient to immunize guinea-pigs against virulent tubercle-bacilli. Marmorek's own clinical experience with his serum, while not extensive, was encouraging so far as it went. He ob-

tained the impression that the efficiency of the treatment depended rather upon the length of time the infection had existed than upon its severity, the serum being most effective in cases of acute phthisis, in which ordinarily the prognosis is worst. In surgical tuberculosis, even in Potts' disease and the like, good results were obtained. In meningitis the serum seemed ineffective.

Marmorek's communication was received rather coldly, and it was not long before adverse reports began to appear. Dieulafoy, Lucas-Championniere, Hallopeau and others published observations declaring the serum not only useless, but occasionally harmful. Only Monod reported satisfactory results. All these opinions, however, were based on quite insufficient observation, so that other clinicians have not been prevented from giving the method a trial. H. Frey, of Davos[10], was one of the first to use the serum. He reports a series of over 350 injections given to twelve patients, of which three discontinued treatment early. Of the other nine, all of which were advanced cases, mostly with cavities, two died during the treatment, two showed little or no improvement, while the other five gained in weight and improved markedly, objectively as well as subjectively. Frey believes that the general effect of the treatment is distinctly beneficial. The fever, if not due to a mixed infection, the dyspnœa and the diuresis are favorably influenced. The sputum and its contained tubercle bacilli are at first greatly increased in quantity, but soon diminish, and occasionally cease to be produced altogether. The most evident conclusion to be drawn from his report, however, is that when properly administered the serum injections are free from danger. Only such reactions (*i. e.*, urticaria, erythema, local reddening and intumescence, occasional joint pain) as may be observed after the injection of any animal serum occurred. A febrile reaction occurs only if the injections are pushed too rapidly, and is never of moment.

Latham[11], who has given 450 injections to thirty patients, reports similar results. All of his cases were in an advanced stage of the disease, many with cavities. In several of his cases, all of them with cavities, the disease was progressive. In most of the cases, however, there was distinct objective improvement, while in practically all of them the subjective discomfort of the patients was lessened. He comes to the conclusion that the serum possesses a specific antitoxic power. A considerable number of other observers have reported each a few cases, and on the whole come to similar results. The dosage is as follows: 5 c.c. are injected daily for four days, followed by a pause of three days. This procedure is repeated three times, whereupon the injections are discontinued for two weeks. In surgical or acute cases doses of 20 to 30 c.c. should be given, and are well borne, even by children. While the harmlessness of the serum has been established, its therapeutic value cannot be accepted until it has been tried on a much larger series of cases. So far, clinicians have hesitated to use it on any but apparently

hopeless cases, where no harm could be done; whereas, it is just in incipient cases that its value, if it has any, would be greatest. Probably its antitoxic power cannot be definitely established until we are in possession of some means for measuring the immunity, acquired and inherent, of the human organism against the tubercle bacillus.

Of all the many methods of treating tuberculosis medicinally that have been advocated of recent years, the only one that seems to be holding its own in the estimation of clinicians, especially in Germany and England, is the Hetol treatment according to Landerer. The latter, whose death last August at the age of sixty, lost to medicine one of her most faithful workers, was primarily a surgeon. His experimental researches in the field of surgical tuberculosis, led him to the conviction that our most valuable medicament in this affection is balsam of Peru. The antituberculous activity of this very complex substance was found to reside in one of its constituents, and in 1888 he published his first communication on the treatment of tuberculosis by means of the intravenous injection of cinnamylic acid (Zimtsaeure). It was later found desirable to substitute for the acid the much more soluble sodium cinnamylate, to which, for purposes of brevity, he gave the name Hetol (after Hedwig, his wife). At first received rather coldly, this treatment has gradually aroused greater interest. Considerable careful work has been done along this line in the past year. Thus, F. Schrage[12] reports twelve carefully observed cases treated by means of the intravenous injections of hetol. Of these, six were in the stage of incipiency, and were discharged cured, both objectively and subjectively; three were somewhat further advanced, and while not freed from all signs of pulmonary involvement, felt themselves well subjectively. Three cases with cavities were rendered more comfortable, but eventually succombed. The first case of his series is particularly striking. The patient was a girl sixteen years old, with incipient phthisis, caseous cervical glands and a nasal lupus that had obstinately resisted all treatment. Under the hetol injections the pulmonary involvement cleared up, the cervical glands healed and the lupus disappeared. Tovolgyi[13] has had similar results, the early cases recovering completely, the more advanced cases being benefited, and occasionally recovering also. When the dose was kept under 15 mg., he never saw any ill after-effects. Heggs[14] reports seven cases so treated with encouraging results. He comes to the conclusion that hetol, though not a specific, is a useful adjunct to any other mode of treatment. Brasch[15], too, reports experiences with hetol, agreeing with the above. In over 6,000 injections he never observed the slightest disturbance from its use. Prym's[16] results on the other hand have been much less favorable. He treated a series of twenty-two cases with intravenous hetol injections. The cases were of all sorts, mild and severe, early and late, and were treated exactly according to Landerer's directions. None of the patients recovered entirely,

and only five showed marked improvement. He observed untoward after-effects, such as chills, fever, hemoptysis in a number of cases, and therefore warns against the promiscuous use of hetol. Nevertheless, while we are far from having in hetol a specific against tuberculosis, the great majority of observers agree as to its value. Just how great the latter is, time and further observation alone will show. As regards technique, a one per cent. solution of hetol in physiological salt solution is sterilized and used for the injections. The latter are done every second day, beginning with 1 mg. and gradually increasing, never, however, exceeding 15 mg. The injections are best made directly into a vein.

In that large group of gastric disturbances characterized by a diminished secretion of HCl and of ferments, the main treatment has long been a dietetic one. Some years ago, however, Fremont vaunted the efficacy in these affections of normal gastric juice obtained from a dog's stomach. This was placed on the market under the name of *gasterine*, and sold at a very high price. Since then several French clinicians have reported excellent results with gasterine in various stomach affections, Huchard going so far as to declare that gasterine was destined to play as great a role in the treatment of disease of the stomach as digitalis in disease of the heart. No really scientific examination of its efficacy has, however, been made until this year. Heichelheim and Kramer[17] studied very carefully a number of cases of achylia and hypochylia, and showed clearly that gasterine is of little or no use in these affections, having, indeed, less efficacy than the ordinary pepsin-hydrochloric acid mixture, which is inefficient enough. W. Erb[18] obtained equally negative results with pig's gastric juice, put on the market under the name of *dyspeptine*. It is quite certain that the good results obtained by these irrational methods of treatment were due to the psychical effect produced by the administration of a very costly drug. The only rational medication in these cases, so far as any is indicated, consists in the administration of very large amounts of hydrochloric acid (300 to 500 c. c. decinormal HCl), not only because it calls into action any remnant of gastric ferment and increases gastric motility, but chiefly because the acid chyle on reaching the duodenum forms our best stimulant of pancreatic and intestinal secretion. Enriquez[19] has modified this method of treatment in a rather ingenious manner. He believes that many cases of dyspepsia are caused not so much directly by the failure of gastric secretion as by the fact that the neutral or very faintly acid gastric contents on reaching the duodenum fail to stimulate a sufficient secretion there. He advocates the use of tartaric acid in capsules so constructed that that they are not dissolved until the food reaches the duodenum. The acid set free there stimulates the secretion of the pancreatic and enteric juice, and so brings about a more perfect digestion. He has had good results with this treatment, but his statements still await confirmation.

One of the most interesting publications of the past year is Grawitz's[20] contribution to the etiology and treatment of pernicious anemia. He offers very convincing evidence that at least in most cases pernicious anemia is enterogenic, being due to the absorption of poisons from the intestinal tract. The rational treatment is hygienic and dietetic, and consists essentially of frequent, even daily, gastric lavage and colonic irrigation, nutrient enemata rich in proteids, and a rather strict vegetable diet. Thereby not only are the products of gastric and intestinal fermentation removed mechanically, but the gastric and intestinal contents are made as poor a culture medium for bacteria as is consistent with sufficient nutrition. Grawitz reports five cases of severe, sometimes apparently hopeless, pernicious anemia, of which three were entirely cured, one almost so, whereas the fifth, after distinct improvement, succumbed to an intercurrent tuberculous peritonitis. Whether all cases of pernicious anemia are of gastro-intestinal origin or not, the unsatisfactory results of all other methods of treating the disease makes it seem worth while to give Grawitz's method a trial in every case.

The modern methods of investigating the functional activity of the kidneys, especially by means of the determination of the freezing point of blood and urine, have thrown a flood of light upon the nature and treatment of renal disease. In advanced cases, where the kidneys fail to eliminate properly, there is a retention of solids in the blood and it is this that threatens uremia. Dropsy must be viewed as a conservative attempt on the part of the body to prevent this increasing concentration of the blood by means of the retention of water. In an elaborate research from Koranyi's clinic at Buda-Pest, Koevesi and Roth-Schulz[21] offer additional proof that this retention of solids can best be combatted by means of diet. The most important item of the dietary is the diminution of the quantity of salt ingested. If much salt is taken the increasing concentration of the blood results either in uremia or in dropsy. Thus Torindo[23] in a recent communication reports two cases of nephritis in which a marked aggravation of the disease followed the use of saline infusions. A pretty accurate indication of the quantity of salt that may be permitted a nephritic is given by the amount of urine he secretes. As normal urine contains on the average about ½ per cent. of salt, the patient may be allowed half as many grams as he secretes 100 c.c. of urine. Thus if he passes 1,000 c.c. of urine daily he may safely take in his food 5 gm. of salt. If there is dropsy or threatening uremia, the amount of salt ingested must be still further reduced. The efficacy of the milk diet for nephritics lies not so much in the avoidance of extractives and other substances irritating to the kidneys, as in the fact that milk is poor in salt. Widal and Jaral[22] made a careful study of the effect upon a nephritic patient of a diet poor in salt. Their results indicate that such a dietary if carefully carried out is very advantageous to the patient. A milk diet is often valuable, but a dietary can be worked out

containing even less salt than milk. It is along these lines probably that the future treatment of nephritis must lie. The value of sweating in nephritis is still a much disputed question. At first sight it might seem that the abstraction from the already over concentrated blood of so much fluid might lead to still greater concentration of the blood and so to uremia. The cryoscopic observations of Strauss[24] and of Bendix[25] show that this complication need not be feared. While normal blood is not perceptibly affected by diaphoresis, the sweat of nephritics is so rich in solids that the concentration of their blood is actually reduced by this procedure and approaches more nearly to the normal. This is particularly the case if, as is usually done, large amounts of water are drunk at the same time Both observers agree that diaphoresis is not only free from danger but of great value in threatening uremia.

While nothing of direct therapeutic importance has appeared this year regarding the treatment of diabetes, a remarkable discovery by O. Cohnheim[26] (the son of the great pathologist, Julius Cohnheim) promises much for the future. After v. Mering and Minkowski had shown that dogs whose pancreas had been exterminated became diabetic, it was supposed that the treatment of diabetes, analogously to that of myxedema, would consist simply in the injection or administration of pancreas substance. Unfortunately, this hope remained unfulfilled and indeed it was soon shown that the pancreas possesses no glycolytic power whatever. It was, therefore, thought either that the healthy pancreas neutralizes certain poisons that otherwise interfere with sugar-metabolism or that sugar-splitting ferments are produced elsewhere under the influence of the internal secretion of the pancreas. Cohnheim's discovery has cleared up this problem entirely. As the result of an exceedingly careful series of experiments he proved that the muscles of dogs and cats contain a sugar-splitting ferment which, however, becomes active only upon the addition of pancreatic tissue. He was able to determine the exact proportions of muscle tissue and pancreas requisite to produce the most active decomposition of sugar and, what is more, to isolate the particular ingredient of pancreatic substance concerned in this reaction. The active principal so isolated is not destroyed by boiling, is soluble in water and alcohol, but not in ether, and so belongs to the same group as the other products of internal secretion, thyroidin and adrenalin. The next step must be the isolation of the sugar-splitting ferment from muscle tissue. When that has been accomplished we shall have in our hands a rational and specific therapy for diabetes.

The observation that in general carcinosis, the spleen is usually free from metastases led Landau[27] to the idea that the splenic tissue might contain some substance that would interfere with the growth of cancer. The treatment of carcinomatous patients with the juices and extracts of splenic tissue showed this supposition to be false, but it was found that a substance could be extracted from the spleen of animals that had re-

markable hemostatic powers. It has been named *stagnin* and seems to act, not like adrenalin by stimulating the contraction of the vascular muscle fibres, but directly by increasing the coagulability of the blood. Its chief field would therefore seem to be capillary hemorrhage. Injected hypodermically, Landau found it efficient in the treatment of menorrhagias and metrorrhagias. It seems probable that it will be found of use in the treatment of hemoptysis, gastric and intestinal hemorrhage, hemophilia, etc., but this will have to be established by future observations. Hirsch[28] gives an account of its mode of preparation. Fresh horses' spleen is minced and rubbed up with twice its bulk of physiological saline solution, to which a little sodium bicarbonate has been added. The mixture, with a little chloroform to prevent decomposition, is allowed to stand in the incubator for forty-eight hours. It is then filtered and the red fluid, after having been evaporated to a quarter of its original bulk, is treated with alcohol. The precipitate, the stagnin, is a yellowish-brown powder, soluble in water; its aqueous solution injected into the gluteal region in doses of one or two c. c. was found to be perfectly innocuous. In fifty-nine cases of hemorrhage from the female genitalia, its hemostatic powers were found satisfactory. There were but few failures.

While the number of 4th of July accidents, followed by tetanus, was very large this year, the prophyllactic use of tetanus antitoxin was never before so widespread nor apparently so successful. Once convulsions have set in, the use of antitoxin is much less apt to be followed by recovery, and indeed there is little exaggeration in the statement that a patient with convulsions is not beginning to have tetanus, he is beginning to die of it. Nevertheless, this year as in the past, a considerable number of cases, not all with a long period of incubation, are reported to have recovered, after convulsions had set in, through the use of tetanus antitoxin. Odell and Snyder[29] even report a case with only seven days' incubation in which well marked opisthotonas had appeared, but which nevertheless recovered after the subcutaneous injection of 220 c. c. of anti-tetanic serum. Such cases must, however, be unusual. Better results are to be expected where the antitoxin is injected into the main nerve-trunk of the injured limb, thus heading off the further progress of the poison on its way to the brain or by injecting it into the spinal canal, thus throwing it directly into the central nervous system. Among others, Rogers[30] and Schley[31] report cases in which tetanus followed punctured wounds of the foot. Antitoxin was injected into the anterior crural and sciatic nerves and into the cauda equina by means of lumbar puncture. Both cases resulted in recovery. On the other hand, Wille[32] reports a similar case in which, in spite of the injection of antitoxin into the spinal canal and, through a trephined opening in the skull, under the cerebral dura, death resulted.

In general, the red-light treatment of smallpox seems to be meeting

with favor, and a large number of cases have been reported in which the exclusion of white light seemed to prevent the occurrence of suppuration. Ricketts and Byles,[33] however, as the result of their observations on thirteen smallpox patients kept in rooms with red-glass windows and red hangings, deny any such virtue to red light. On the contrary, it seemed to them that the red light increased the psychical disturbances incident to the disease without affecting the occurrence of suppuration. The interference with free ventilation and with hygienic precautions that is inseparable from a careful exclusion of white light makes this mode of treatment, in their opinion, directly harmful. In what was probably his last utterance, the late Prof. Finsen,[34] who originated the red-light treatment, replied to these strictures. In order that the exclusion of white light may prevent suppuration, he wrote, it is essential that the patients be kept in the red chamber from the very beginning of the disease. Even a relatively short exposure to white light, especially if the exanthem be well established, suffices to produce suppuration. Nevertheless Ricketts and Byles[35] maintain their opposition to the treatment, declaring that not a single one of their cases showed any modification or improvement that could be ascribed to this therapeutic agent. Further experience on a large number of cases alone will make clear the truth of the matter.

The question as to the value of excluding white light during vaccination is also as yet not decided. It is certain that if the vaccination be performed in a dark room, and if later all white light be excluded from the wound, the usual inflammatory reaction will fail to appear. The fear has been that, with the non-occurrence of the inflammation, the protection against smallpox might also turn out to be insufficient. As the result of a careful series of observations, Goldman[36] has made it probable that this fear is ungrounded. At any rate, in none of his cases so vaccinated did a second vaccination take. Nevertheless, the question as to the protection exerted by this mode of vaccination against smallpox is even so not quite definitely decided.

Of some interest in this connection is the report by Motschan[37] of a case of noma treated by exposures to red light. The patient was a boy of nine years, in whom the disease had progressed to perforation of the cheek and lip. The necrotic area was exposed to the light of a sixteen candle-power incandescent lamp, covered with red glass and furnished with a conical reflector. The lamp was kept at a distance of about eight inches from the ulcerating surface and the exposure was maintained nearly continuously, day and night. The pain soon ceased, but returned whenever the lamp was temporarily taken away. In three days the disease showed marked improvement and thereafter healed without further incident.

Cruveilhier[38] has suggested an improved method of administering diphtheria antitoxin. He finds that the antitoxin, when injected into a

vein, acts far more rapidly and vigorously than when given hypodermically. Thus, he found that in guinea pigs, if a certain interval was allowed to elapse between the injection of the toxin and that of the antitoxin, the latter would fail to preserve life, no matter how high the dose. If, however, the antitoxin was given intravenously, the animal recovered, even if the period at which the hypodermic administration of the serum was effective had long since elapsed. His results indicate that in desperate cases, especially where the infection has existed a number of days before treatment is begun, the intravenous administration of antitoxin promises far more than the hypodermic. Of even greater interest is the announcement of Wassermann[39], that he has succeeded in isolating a serum bactericidal to the diphtheria-bacillus. The serum is dried in vacuo and pulverized or made into pastilles. The powder is insufflated or the pastilles sucked by the patient, so that the serum comes into direct contact with the diphtheritic surface. The serum is not to replace the antitoxin, but is to be used in combination with it. Its chief value will lie in preventing contagion, As is well known, children who have recovered from diphtheria often carry about in their throats virulent diphtheria-bacilli for weeks or months, and so form a constant menace to the community. If Wassermann's serum will prevent this its value will be great.

There is still much difference of opinion among clinicians as to the value of the various antistreptococcic sera. Shaw[40] gives an account of the results obtained with Moser's antistreptococcus serum in scarlatina. During a period of three and one-half years 1,069 cases of scarlet fever were admitted to the Anna Children's Hospital in Vienna. Of these, 228 received injections of Moser's serum. The mortality for four years before the serum treatment averaged 14.5 per cent., and for the four years since its employment only 8 per cent. During this last period the mortality in the other Viennese hospitals, where the serum was not used, averaged 13.1 per cent. The serum is harmless, but produces a febrile reaction that makes the children very uncomfortable. In puerperal septicemia, Pilcer and Eberson[41] report a series of twenty-eight cases treated by means of Marmorek's antistreptococcus serum with strikingly good results. They warmly recommend its use, On the other hand, at Chrobak's[42] clinic in Vienna the results with Marmorek's serum were almost negative, while those with Paltauf's serum, which is prepared by the use of more recent streptococcus cultures than Marmorek's, were strikingly good. Hamilton[43] also reports having obtained good results, both in scarlatina and in puerperal infection, by means of a streptococcus anti-serum. Menzer's serum seems to act best in articular rheumatism, and a large number of cases have been reported, not only by himself[44], but by Schmidt[45], Sinnhuber[46] and others, in which good results were obtained, both in the acute and in the chronic forms. It must for the present remain impossible to subject our own domestic antistrepto-

coccic sera to any rational or scientific test. While they are doubtlessly honestly made, the secrecy with which their manufacture is surrounded and the impossibility of learning whether they are based upon the streptococci of scarlatina, puerperal fever, rheumatic tonsilitis, etc., makes an opinion based on anything but merely empirical observation impossible. For the present, until the value of these sera, both foreign and domestic, has been more clearly established, the attitude of the medical profession toward them may well be a skeptical one.

It is now over seven years since Wright began the study of human inoculation against typhoid fever, and the results obtained can no longer be questioned. In a recent very elaborate communication[47] he states in detail the results so far obtained. The method in brief is as follows: The serum used is a bouillon culture of typhoid bacilli sterilized by heat. The individual to be immunized is given an injection of serum containing 750 to 1,000 million bacilli, and some time after a second injection containing twice as many. The injection is very painful and is followed by a sero-hemorrhagic edema of the skin about the site of puncture. The blood of inoculated individuals soon acquires a very marked bacteriolytic power for typhoid bacilli. The inoculations were performed chiefly upon soldiers about to leave for India or South Africa. Both the morbidity and mortality as regards typhoid was less than half among the men so treated than it was among non-inoculated soldiers under the same sanitary conditions. Observations made among garrisons in Egypt and in India show that the protective power of inoculations endures two or three years. While the method, on account of its painful nature, will probably not come into general use, it is, as Smith[48] points out, of undoubted practical value to—

1. Any community in which typhoid breaks out in an epidemic form.
2. Those who, like nurses, have much to do with typhoid patients.
3. Soldiers and others about to be sent to localities where typhoid is very general.

There is still much difference of opinion as to the value of Jez's antityphoid extract. The rationale of the extract is based upon an observation of Wassermann, that the protective substances formed in animals immunized against typhoid are not found in the blood serum, but are concentrated in certain organs, especially the spleen, thymus, bone-marrow and central nervous system. Jez accordingly took these organs from rabbits that had been strongly immunized against typhoid and made an alcohol-glycerine extract of them. This extract is given by the mouth in doses of three ounces daily. Some clinicians have obtained positive, others, notably Pometta, entirely negative results. Du Mesnil de Rochemont[49] has used the extract on a series of cases, some mild and some severe, as they came, without selection. His results were strikingly favorable and give the impression that the extract exercised a positive curative effect. A definite opinion can, however, be formed only by

trying the extract on a very much larger series of cases. Considering the ease with which the extract can be manufactured, and the simplicity and inocuousness of its administration, a more general trial is certainly to be advised.

Results with the new anti-dysenteric serum described by Gabritschewsky in the *Centralblatt f. Bakteriologie*, have been reported by Rosenthal[50]. Of 157 dysentery patients treated by means of this serum only seven died. Of these, one was seventy-five years old, and three others were not seen until late in the disease. Distinct benefit was noted even in advanced cases with small pulse, cold hands and feet, paralyzed sphincter and bloody mucous dripping from the anus. The mortality among the patients treated with the serum was less than half that among those not so treated and their average stay in hospital was much shorter. The serum marks a distinct advance in our treatment of this disease. The dysenteric cases referred to are, of course, only the bacillary kind. Amœboid dysentery is not influenced.

Some three years ago Pusey reported the first cases of leucemia treated by means of exposure to x-rays. One, a case of medullary leucemia, was not benefited, but the other, one of lymphatic leucemia, was apparently cured. A year later Senn reported the first case of medullary leucemia thus treated. The patient apparently recovered completely, but not long after the publication of his report she had a relapse which proved fatal. During the past year a considerable number of cases so treated have been reported. It may be of interest to mention a few. Ahrens[51] reports a case of medullary leucemia in which the number of red and white cells were about equal, and the spleen was twice the size of a man's head. After the fortieth exposure the spleen and the blood findings were normal, and the patient considered himself well. Not long after, however, he had a relapse which ran a rapid course and ended in death. Evans[52] reports two cases of medullary leucemia so treated. In both there was subjectively a cure and objectively very great improvement. The continued pressure in the blood of considerable numbers of myelocytes, however, showed that the cure was not complete. Brown[53] reports a similar case, in which the splenic tumor disappeared and the patient felt entirely well. The blood findings, too, improved greatly. Cheney's[54] and Taylor's[55] cases were very similar. At the last Congress of German Naturalists and Physicians[56], Schweinburg, Krause and Soetbeer each reported a successful case. Fried[57] reports two cases, Colombo[58] three, Guilloz and Spillman[59] one, Bozzolo[60] two cases, favorably influenced by exposure to the x-rays. The most instructive report is that of Capps and Smith[61]. They report the results of x-ray treatment in eight cases, two of them medullary leucemia and six lymphatic. One of the latter was an acute case, which was not influenced by the treatment. The others were all greatly improved, in one of them all signs of the disease completely disappearing. Nevertheless, of these

eight cases five are now dead. These results are calculated considerably to dampen the ardor with which this mode of treating leucemia was at first welcomed. Doubtless there have been many failures to obtain improvement that have never been reported. Moreover, these remissions with apparent return to the normal are characteristic of leucemia, and have been observed not only as the result of all kinds of treatment, but especially after acute infections. Simon and Campbell[62] report an instructive case of medullary leucemia in which an apparently perfect cure was obtained by the use of arsenic. Nevertheless, it does seem that in this dreadful disease the x-rays offer the greatest promise of temporary improvement. Whether an incipient case treated early and persistently by means of the x-rays will result in a permanent cure remains to be seen. It seems to make little difference whether a hard or soft tube is used. Long exposures, with their danger of dermatitis, do not seem to be requisite. The exposures must, however, be frequently repeated and large in number.

The value of radium in internal therapeutics is as yet very problematical. In dermatology it has apparently won a place, though as yet one subordinate to that of the Roentgen rays. Whether it has a curative effect upon cancerous tissue is still a matter of dispute. Werner and Hirschel[63] report that in Czerny's clinic five cases of superficial carcinoma and one of sarcoma had been treated by means of radium without result, whereas benign and tuberculous growths were favorably influenced. Lassar[64] and Pusey[65], on the other hand, consider the curative value of radium in cases of cutaneous cancer beyond dispute. The only one who has obtained undoubted results in the treatment of internal cancer by means of radium is Exner[66]. By enclosing the radium in a capsule attached to the end of an esophageal bougee, he was enabled to place it in close contact with the new growth in cancerous stricture of the esophagus. The application was made about every other day, though sometimes at longer intervals, and lasted twenty to thirty minutes. In five out of six cases so treated the results were very satisfactory. The patients, some of whom had before been treated without much benefit by means of dilatation, were soon able to swallow well and gained in weight and strength. The radium had evidently caused a partial necrosis of the cancerous tissue, involving to be sure on the one hand considerable danger of perforation, but assuring on the other a relatively permanent widening of the cancerous stricture.

One of the most interesting novelties in the field of internal therapeutics is the hypodermic use of thiosinamin. In some manner that is as yet not at all clearly understood, thiosinamin so administered seems to have the power of softening and dissolving scar tissue wherever situated. During the past few years a large number of cases of Dupuytren's contracture cured by this means have been reported. Roos recommends its use in old pleuritic adhesions; Lewandowski[67] has succeeded in dis-

solving a synechia of the iris. A goodly means of success has attended its use in scars of internal viscera. Thus Hartz[68] reports a case of cicatricial stenosis at the pylorus, of twenty-eight years' standing, so treated, in which he obtained a perfect cure. Glogner[69] reports three similar cases. Two of them were not benefited by the treatment, but the improvement was marked in the third case. The patient, a man fifty-seven years old, had had the stricture for many years and showed a pronounced gastrectasis. Although the stomach did not retract entirely to its normal outline, the disappearance of all stagnation and of all subjective discomfort following the thiosinamin injections proved that the pylorus had become patent. Tabor's[70] case was one of hour glass stomach due to a contracting scar, probably following an ulcus. He declares the results of the injections to have been astounding (verblueffend); from week to week the outlines of the inflated stomach could be seen to approach the normal. The case resulted in complete recovery. Baumstark's[71] results, on the other hand, were quite negative. In four cases of cicatricial stenosis at the pylorus, injections of thiosinamin were not followed by a trace of improvement. In two cases of pericholecystitis and perigastritis the use of thiosinamin was followed by good results, but as other therapeutic measures were not neglected, he is not inclined to ascribe much of the improvement to thiosinamin. The true value of thiosinamin in the treatment of cicatricial contractions about the stomach still remains to be decided by further observation. In cases where the patient is much weakened, and relief is urgent, it would not apparently be proper to lose valuable time in trying the thiosinamin treatment. In such cases prompt surgical interference is indicated. Where, however, the condition demands relief less urgently a trial course of thiosinamin injections is certainly to be recommended. If their power to dissolve pyloric scars is as great as some of the reports indicate, the injections may even become of diagnostic value in distinguishing between benign and malignant pyloric stenosis. As regards the technique of the injections, they may be made anywhere. Nothing is gained by injecting the drug into the neighborhood of the scar. As the least sensitive portion of the body, the back is usually chosen. The solution used may be either a 15 per cent. alcoholic solution or a 10 to 20 per cent. solution in 10 per cent. glycerin water. The former is slightly more painful, whereas the latter is considerably less stable. The injections are made two or three times weekly.

Barr[72] has had good results in the treatment of pleuritic effusions by means of adrenalin chloride. After tapping, he injects a dram of the 1 to 1000 solution into the pleural cavity, and in his series of cases has never had any recurrence of the fluid. In ascites his results have sometimes been successful, sometimes not. In the one case of pericardial effusion so treated the patient nearly died, as the adrenalin temporarily cut off the circulation in the heart. While the patient eventually re-

covered, the adrenalin injections are certainly contraindicated in this condition.

Livingston[73] treats drug habits of all sorts by means of ergot. He is opposed to tapering off the drug, as it is called, and stops it once for all. Half a dram of the fluid extract of ergot injected hypodermically, two or three times daily, prevents most of the disorders following the withdrawal of the drug, probably by preventing the general relaxation, especially of the vascular muscularis that would otherwise follow. Of course the usual hygienic procedures, such as the use of laxatives, liquid diet, and the like, are not neglected. The management of the first forty-eight hours alone offers any difficulty; after that the case takes care of itself. His best results were with alcoholics, but in cases of morphine and other drug habits also, the results were good.

There is still a general tendency to treat the low blood-pressure in fevers by means of the administration of strychnine. Cabot[74] has carefully measured the blood-pressure after the administration of strychnine in thirty-one cases of typhoid, four of pneumonia and fifteen other febrile conditions, both subcutaneously and by the mouth. On the whole, the effect was nil. In twenty-four cases there was no change in the blood-pressure, in seventeen there was a fall, and in fifteen a very slight rise. In the fifty cases that received strychnine the average blood-pressure was no greater than in the eighteen that were left without stimulation. It seems clear that except in threatening heart-failure, the low blood-pressure of fevers is best left untreated.

The good effect obtained by Meyer[75] in the treatment of neuralgia and myalgia by means of hydrochinon, has been reported in a recent issue of this journal. His results were far better than those obtained by means of any of the other antipyretics, and should lead to a more general use of this drug.

In spite of the undeniable value of extract of male fern as an anthelmintic, it is by no means an ideal preparation. Its chief fault lies in the inconstancy of its composition, so that one sample will be very active, another almost inert. In order to obtain a positive effect with certainty, doses so large must be given that toxic effects sometimes result. This has led many clinicians to abandon the use of this drug altogether. Jaquet[76] has tested the anthelmintic power of the various components of male fern, one of which, an amorphous acid, forming about 5 per cent. of the average extract, has been given the name filmaron. He found that in doses of about 0.7 gm., (somewhat less for children), filmaron acted as a reliable anthelmintic, free from all toxic effects. The other constituents of male fern are far less useful.

A new era in the administration of saline laxatives may result from the researches of MacCallum[77]. He found that the hypodermic injection of very small doses of the saline laxatives, such as sodium citrate or sodium sulphate, was followed by prompt purgation. Both the intestinal

peristalsis and the secretion of fluid into the lumen of the bowel were greatly stimulated. If barium chloride was used even smaller doses sufficed. His experiments were all performed on animals, so that the dose for man has not yet been worked out. If the results on human beings are found to correspond to those obtained on dogs, and there is no reason why they should not, this mode of obtaining purgation may, in many cases, prove of great value. It is of scarcely less interest to note that, at least in dogs, the hypodermic administration of small doses of calcium chloride checks intestinal peristalsis and hypersecretion very promptly, so that it forms a perfect antidote to the salines. Clinically, this observation may lead to an effective method of treating obstinate diarrhoea.

Dawson[78] finds that when hypodermoclysis is used after hemorrhage, the addition of sodium bicarbonate to the saline solution stimulates the cardiac action, thereby restoring the blood-pressure, both systolic and diastolic, to a higher level than when the saline solution alone is employed. When a solution containing 0.8 per cent. of salt and 0.25 per cent. of sodium bicarbonate is infused slowly, the beneficial action upon the blood pressure persists for a considerable time. Whether the addition to the saline solution of sodium bicarbonate is of equal value in other conditions requiring hypodermoclysis remains to be seen.

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PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

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Reviewing the progress of pathology and bacteriology during a year would be a thankless task if by it was meant a recapitulation of the literature come out on the subjects in this time. Owing to the facility of printing and publishing, these two branches of biologic science are suffering from the same degree of superfecundation as to literature as are other branches. The result is an immense amount of material of data and facts that are lying waste and isolated until a master mind will combine them to a harmonious picture. They mean in this sense a step towards progress, but as it is they do not change, at the present, the aspect of the science itself. The activity in this line of pathologic and bacteriologic research has been very great, and will certainly in some future time bear fruit; it would be, however, here a useless and unprofitable attempt, as far as the reader is concerned, to enter into any detail work. Besides this, the greater part of the literature of last year, there have, however, questions been advanced and discussed, and partly answered, that have in some cases remodeled opinions and teachings; and with this work the following remarks will have to deal.

I cannot enter here into a discussion of the views taken of these sciences in regard to their capacity to deepen our knowledge of life. There exists a tendency today to neglect any questions relating to the sole consideration of forms, macroscopically or microscopically visible, and to transfer the field of investigation, even in pathology, to purely chemical and physical problems. Of course it is clear that what, up to date, has been the work of the pathologist, will in the future find its illumi-

nation by the study of the processes leading to the changes of form, function and constitution. But pathology must master, first, completely the visible and demonstrable changes, before those future researches can attack successfully the problem. The bacteriologist had to study, first, the micro-organisms to the minutest details of their form and behavior before the immortal successes could be obtained in our modern views on immunity and on many general biologic problems. Pathology, general as well as special, will for centuries to come remain the basis of all deeper delving researches and inquiries. We know too well that morphologic conceptions are the products of our human brain, but they are the first to offer themselves to observation, and their suggestiveness alone has led us beyond morphology into a realm that some assert to believe is reality and truth.

A pathologic chemistry will only make great strides forward after what we call today pathology has cleared the path for the confidence in applying purely chemical and physical methods to the solution of pathologic problems. Views like those mentioned can be found in different places, and were strongly emphasized at the great congress held this year in St. Louis. Their justification cannot be denied; still the possibilities for their realization must first be created by the methods of investigation gradually developed to the present time in discovering and accounting for pathologic processes and in determining their casual relations, as far as our capacity goes. As the beginning and the end of what we call knowledge, we will always and alone have our sensory organs. Any error in the simpler conceptions will lead to geometrically enlarged mistakes. From this point of view modern pathology and bacteriology are essential and fundamental for the understanding of what we have called disease.

Of those problems, the solution of which promises important information in a great number of different directions, the origin of tumor formations is one of the first. So far we have known nothing about it, as shown by the number of theories advanced. It seems, however, that a light is beginning to dawn after the work of the last year. At least from one class of tumors, we are able with all that force of certainty that we possibly can ask for, to say that we know their origin. This refers to the splendid researches inaugurated by Marchand and set in full relief by Schlagenhauffer and Pick about the chorionepithelioma. Ordinarily occurring in the course of, and in connection with pregnancy, and even there with certainty recognized as a derivative of an abnormal development of the fetal epithelium, even as tumor retaining all of the morphologic and biologic qualities of this epithelium, it was deemed to be a tumor limited in its appearance to the female. Through Schlagenhauffer and Pick we learned that the same tumor occurs in the male, and in females before the stage of puberty. As there is no doubt but that the elements of the tumor are cells derived from fetal epithelium, in the

adult, therefore, where a transplantation of fetal tissue into the maternal organism is possible, an explanation was given. It was found by the observations that the tumor in males occurred only in formations, called teratomata or embryomata, tumors that all along were believed to develop from complexes of cells, separated off and shut out from the physiologic connections at a period so early that the innate qualities of these cells enabled them to produce in later growth the same tissues that the tissue from which they were separated produced in later life. There is no other explanation for the fact that in such tumors all of the different tissues and structures of the animal organism may be found. They cannot have taken their origin in later life after differentiation had taken place, because we have little reason to assume that differentiated cells of our tissues can ever be transformed in cells of a heterogeneous type. The cells forming such tumors, therefore, must have been eliminated from the normal relations at a period of development where each cell still had the quality to produce all types of cells. At what time this occurred, whether they arise from a polar body or from a cell after the first segmentations, a blastomere, would lead too far to discuss. Whatever the final decision about this point may be, it will not change the certainty that chorionepithelioma in males must have arisen from cells extrapolated during the fetal development. If there would be possible an absolute truth and certainty, this would be such. For this class of tumors we know where they come from.

So far, an absolute knowledge is limited to this form. Can we draw any conclusions from them to other tumor formations, especially those that practically interest us most, the malignant growths? If we consider the testicle tumors, in which chorionepithelioma is present, we are often surprised by the complete representation of all the tissues of the human body. Here the explanation is easy. But many cases of tumors occur in which this variety is limited to a few forms of tissue. The same obtains for teratomata in other regions (ovaries, etc.). Wilms has pointed out that this would not speak against a similar origin, as we can easily imagine that not all conditions would correspond to the conditions necessary for the development of each tissue. In fact, the opinion is held generally that either these tissues have not developed altogether, or that the elimination of the tumor forming cells occurred at a time where already differentiation had taken place, and, therefore, the product must correspond to the stage of differentiation of these cells. As will be seen, such a reasoning would make it easy finally to comprehend all forms of tumors under the head of embryonal detachment of cell complexes. This does not represent Cohnheim's ideas, although in them the germ for it is given; there does not take place a dissemination of those cells, but simply an extrapolation from the normal connections. They are found at the site, where experience teaches through the complexity of the growth such disturbances are liable to occur, and where,

in fact, in fetal tissues misplaced tissue elements are found, suggesting strongly the possibility that in later life they would have formed tumors. This, of course, is to a degree merely speculative, as not in a single case the direct origin, the tumor in *statu nascendi* has been observed.

That it is a very entrancing theory, and serves as a theory to all purposes, has been shown by Ribbert, who in his Geschwulstlehre has made it the basis for his discussion on tumors. This work has been ridiculed and belittled by men not understanding that in order to impress an idea and stimulate the demonstration of its truth by investigation, all possible consequences must be logically shown as a guide for the way the inquiries may have to go. In the first place the question is in place whether we call tumors a group of formations that in their essential characters are alike and must be classed together. The so-called independent growth, relying on the carrying host only for nutrition, means so little in view of the immense variety in character and relations of these tumors that it alone could not constitute them a homogeneous group. It would be much more plausible and logical to unite them by the conception that explains the existence of almost all of them in the way Ribbert does. His work, although not generally accepted, has, however, done so much that there has arisen a hesitating feeling while classing tumors in the rubrics given by our text-books, and there are now more pathologists than ever before that keep in their collections interrogation marks on a shelf, that means tumors which they do not right out dare to call a sarcoma or something else. It is yet, as said before, not clear whether such a conception of fetal origin will hold good for all tumors, but the general feeling is that more and more of them cannot be explained so far in another way.

And with this remark we approach the cancer problem. Its rank, theoretically and practically, among the most important subjects of pathology, bids fair to give rise to a great deal of investigation. The publications on it during the last year are very numerous, whole periodicals being devoted to it. We have now four or five special cancer commissions working on it, in itself a proof how inaccessible the problem so far has been. If we, however, ask what has been done to bring us nearer the solution of the origin of carcinomatous tumors, we will find as answer that not a step has been done forward and that the riddle is as obscure and veiled as it ever was. If the multiple attempts to lift this veil have resulted in nothing else, they have done this, to demonstrate that all the ways so far tried are unsuccessful and that we must rely on new methods and ideas to come nearer the solution. It has done another thing, to show in its entire futility the theory of a parasitic origin of carcinoma, an idea never entertained by pathology and only suggested by superficial resemblances. In looking over the numerous papers attempting to prove the existence of parasites, one is more surprised to find in the foreground always a preconceived idea than to see

how fragile and liable the arguments are brought forward to prop up this idea. It is very unfortunate that the heads of some cancer commissions are men relying on clinical observations more than on the findings of pathology. This obtains for America as well as for Europe. A good instance of this trend of ratiocination is the constant search for proof for the infectiousness of malignant tumors under natural conditions and under those of the experiment. As is well known, these experiments have resulted positive in a number of cases with us, especially by Loeb for sarcoma, and in Europe by Fensen, Michaelis, and others for a carcinoma (?) of the mouse. Such tumors can be with certainty transferred from one individual to the other, retaining their original structure and qualities. But this result has absolutely nothing to do with the origin of the tumor, it is completely in the line of that knowledge we can obtain from the transplantation of skin from one person to another; these investigations are only transplantation—experiments, and do not throw any light on the nature of the process that allows of the origin of a carcinoma. They are very interesting, but simply add an additional proof to something the truth of which was long since known.

None of these researches has a bearing on the cancer problem. In fact, the primary conceptions on even the growth of a carcinoma are by no means established generally. There is still prevailing in wide circles, even among pathologists, the idea of a, what is called, carcinomatous or sarcomatous degeneration, the belief that in the course of such a growth normal tissue cells of the same histologic character are involved in it and become tumor cells. No doubt microscopic pictures very often suggest this idea, and unless we remember under which conditions we study such a tumor we are very liable to forget that the tumor has existed for a long while, and that we have no way to judge what is primary or secondary. To this class of self-deceptions, too, belongs the method to establish from the peripheral portions of a tumor its origin. It is, again, the work of Ribbert to have shattered the justification for this, as in suitable cases it can be demonstrated that every tumor cell is a derivative of the tumor itself, that tumors grow out of themselves, but do not change other tissues to tumor tissue. We are talking of an early stage of a carcinoma, and forget that any, even the minutest carcinoma we meet with, is of shorter or longer standing, and that as yet nobody, absolutely nobody, has watched a carcinoma arise. We call a structure carcinoma when it shows the full qualities of the conception used. It does not depend upon the size to call a small tumor an early stage; the beginning stage of the tumor we would most likely not recognize, as it need not bear the characters of our conception of a carcinoma. This work of Ribbert has lately been beautifully complemented by the valuable publications of Borrmann, especially his last on the skin cancers.

Borrmann examined material of such tumors in a great variety of cases; he only paid attention to "early" stages, of the size of from 1

mm. to 1 or 2 c. In not a single case he would find the stage of the first beginning of the tumor; they always were fully characterized and typical in structure. They never showed a direct derivation from the homologous epithelium, never were in developmental contiguity with it and he never saw that this epithelium took any part in the growth and the increase of the tumor. His work is classic, and does finally and altogether away with the malignant changes of normal tissue. He has shown, before, the same course of growth for the carcinomata of the stomach, and with the evident uniformity of being epithelial formations, we may be confident that the identical results would be obtained by the investigation of tumors of other origin

Even at its youngest, or, better, smallest stage, a carcinoma always appears sharply differentiated from the adjoining tissues, even from those that histologically are identical with it and are at the site of the growth its direct neighbors. Borrmann's researches have made one point clear, that in no case we can demonstrate the origin of a carcinoma from normally connected cells; even the minutest tumors we can discover are nowhere seen to be their product. They must originate, of course, from cells identical with them, but not in normal or physiological connection with them, cells separated and isolated during the course of the development and differentiation of the tissues. Ribbert had already suggested such an origin for many carcinomata; for others he has accepted the view of a development of epithelial cells due to inflammatory changes of chronic nature in the underlying tissue. The fact that observation seems to teach that such changes really now and then have been present before the appearance of a tumor (if these observations can be accepted as representing the true nature of the process) would confirm him. But on account of the difficulty of establishing from the post hoc, propter hoc, the casual relation, it appears much more logical to see in these changes nothing but a stimulating factor for the proliferation of the separated cells.

Of course, this part of the question is not solved by such a theory; it may be possible to find still smaller carcinomata, which show a direct derivation from the local epithelium. But one question is by Borrmann's work forever decided, there can be always only a small number of cells that become carcinomatous, and these from themselves, by multiplication, produce the whole of the tumor and of its metastases. The other and even next adjoining cells remain what they were. This demonstration is so fundamental in its importance and so far-reaching in its general consequences that we must pronounce it as the greatest advance that cancer work has made during the last year. It has done away also with a multicentricity of carcinomata of Petersen and puts in its place the formation of multiple tumors from multiple "anlagen." That this work will have an invigorating influence on the study of all

other tumors goes without saying; the applicability of the theory has already been exposed by Ribbert.

How necessary such researches are for the understanding of other formations shows in a negative way the great literature that appeared last year on different forms of enlargement of lymphatic structures. This literature is bewildering in the variety of opinions that each author expresses of the pathologic quality of the case he dealt with. It is impossible to reconcile these opinions with each other, as a fundamental basis for a criterion is not on hand. This literature is indeed a proof for our utter lack of knowledge on the normal and pathologic qualities of the lymph glands, and consequently for the impossibility of judging changes that are found, differentiating and classifying. What splenic anemia, Bantis' disease, Hodgkins' disease, lymphoma and lymphosartoma pathologically are, it would be impossible to say after reading this literature. It suffers mainly from a deficient recognition of our slight acquaintance with the conditions under which these organs arise, grow, work and become diseased. The table of hyperplasias and tumor-formations of lymph glands, published by Turck, is absolutely arbitrary and will only lead to a superficiality in the investigation of these certainly very important structures. The pathologic literature of this year leaves only the impression that our information is as yet extremely limited. The same obtains for the hemolymphglands, which by Warthin have received very careful and original study. He has called the attention to the behavior of these glands and to their changes under different pathologic conditions, but a clear and impressive picture of their status has not as yet been gained. Certainly it is not correct to provide them mainly with a hemolytic function. The evidence for this lies so far only in the copious phagocytosis of blood-corpuscles within them. What brought these corpuscles there, in what condition they arrived there, we do not know, just as little as why the spleen is filled often so suddenly with disintegrated red cells. To call a destruction of these cells within these organs the hemolytic function of these organs would only be correct if phagocytosis meant an active protection against injurious agents. It has become the fashion to accept this as the established position, while in those processes that we are really able to control and follow directly the result points to everything else than to the phagocytosis. The destruction of debris is most likely the only function, not the cellulicidal and bactericidal function, which is performed elsewhere. And in pernicious anemia we certainly would not expect it in the hemolymphglands, because it can be demonstrated that in this disease in cases with insufficient activity of the bone-marrow, these very same glands may become hematopoietic organs. We know too little as yet about them to attribute to their changes the importance that from some sides is endowed to them.

The whole subject of hematopoiesis, and especially of leucocyte form-

ation, and of the relations of the different leucocytes to each other, has not made much progress. Nor do we know much more about their relative functions. The investigations of Opie on eosinophilous cells are very interesting, but are by no means conclusive enough to prove their formation in loco with any degree of certainty. Ehrlich himself has lately pointed to this, and suggested in which way an explanation could be obtained in conformance with the view that they are only, and alone, bone-marrow products, and that their finding in other tissues must be due to metastatization of elements of this tissue, like we see it in other conditions. The evidence for the developmental unity of mono and polynuclear leucocytes has not increased; on the contrary, there has been shown a tendency to fall back to Ehrlich's views of the developmental difference of these elements. Only one point becomes more and more accepted, that, opposing Ehrlich's view, lymphocytes can be migratory and actively increase the cellular infiltration of tissues. Consequently Unna's teaching, to which lately Maximow also has connived, that they are able to take part in the formation of granulation tissue, is abandoned, and that seals, too, the fate of the plasmacells who are derivatives of lymphocytic elements. The attempts to show their separating off from connective tissue cells, as made by a disciple of Unna, are too clumsy to be taken into consideration.

Of other pathologic problems only a few words may be devoted to Opie's well-known discovery of lesions of the Langerhans Islands in diabetes. His work has excited a hot discussion pro and contra. A great number of investigations have been published, the last and at the same time the most objective one by Sanerbeck. Although many points speak against a specificity of the lesions, the general result has been that they are almost only found in diabetes. On the other side, these lesions are not equally extensive in all cases, nor do they affect the islands throughout the organ or always in the same degree. The numbers of islands in the normal organ vary, besides, greatly, so that many of the latter equal those of diabetes in the total number and apparently, therefore, in their functional capacity. Only a comparison of cases with regard to the clinical aspect will establish whether the degree of the pancreatic lesions found in each case would pathologically correspond to it. Hansemann's assertions that the alleged importance of these lesions is imaginary is certainly premature.

The discussion and investigation of tuberculosis questions has been as active as in the previous year, although less passionate. It may be said that the two main points—the pathogenesis and specific etiology of the infection—appear to be settled for most observers. For certain reasons, uniformity of opinion has not been reached yet. As to the pathogenesis, Behring's pronunciamentoes have been the cause of a great number of pathologic and statistical materials to be collected that absolutely speak against the correctness of this author's views. The old

teaching of inhalation tuberculosis has gained the victory again in place of the enthusiasm for the infantile infection. It may be here sufficient to say that at the present time there is no need to leave the basis on which so far our knowledge of tuberculous infection has rested. Perhaps it has been a little too one-sided and too mechanical; still there is no reason to abandon it, as for the great majority of cases it certainly accounts fully. As to etiology, of course, only the fight about the identity of human and bovine bacilli can be meant. Behring's positive assertions for a while made such an impression that judgment had to stop. Although to the critical observer even in 1903 the decision pro or contra was not doubtful, the general belief certainly has been for some time that Koch's views on the difference, and especially the pathogenic difference, of these bacilli has not been correct. It was only due to the arbitrary combination of the theory of infantile infection and the infectiosity of cow's milk, which at the first glance appeared so convincing, that Behring succeeded to lead medicine and laity astray. It was due, too, to the publication of isolated and vagrary experiments published, that from single cases general conclusions were made. It was due to the criticlesness with which human tuberculosis was in certain cases on the basis of a history of infection with bovine bacilli pronounced as of bovine origin. This in spite of the fact that before this pronunciation was made, Koch himself had explicitly shown how impossible it is to draw any binding inferences from such cases. Meanwhile, the work on a firm basis went on, and the year 1904 has brought results that, without the possibility of contradiction, do away with the horror of bovine tuberculosis. The extensive experiments made in Berlin (Kossel and others) are alone so plain and uniform that they exclude any doubt. Even in our country the trend of opinion begins to change, and we are glad to have heard Smith give public expression to this. Aside from the experimental work that at the best, for clear reasons, must act one-sidedly, the accumulation of evidence in other directions has been enormous. One of the most convincing data is the demonstration of the tuberculosis condition in Japan, before and after the contact with western civilization, published almost simultaneously, but independently, by Japanese and German authors. There was no cattle in Japan before the European control; milk and beef were unknown. Even to-day the use of both materials is limited to an astoundingly small minority of the population. In fact, nursing with cow's milk is even to-day almost unknown. Nevertheless, the rate of tuberculosis mortality was about the same before and after the control, and a very curious point, but weighty in connection with these questions, is the fact that puerile tuberculosis in Japan exceeds by far the same in many European countries. All this without cow's milk.

Another important contribution is the collection of data referring to the way in which patients in hospitals and sanitaria were nursed during

the first year of their life. It was found that in some 6,000 cases only a minority received cow's milk; that the majority were breast-fed. This shows definitely that the infection was not acquired through cow's milk; was not acquired during the first years of life. As there is no *a priori* reason to assume a difference in the way of infection of the breast-milk and cow-milk individuals, the cow's milk cannot certainly have been the base of it, and the only source can have been the contact with tuberculous individuals. This also accounts for the high infant mortality in Japan, with its crowded and filthy houses, as it accounts in the same way for the terrific rate of tuberculosis in Greenland, where no cattle exist.

The theoretic considerations that were opposed to Behring's view could be shaped and formed, perhaps, to conform with them. This is impossible with these experiences, especially in view of the outspoken directness of Behring. They form a beautiful and complete confirmation of the idea with which Koch started his work on the extermination of tuberculosis: only the human tuberculous patient can disseminate the disease, and the only (perhaps we might connivingly say the main) thing is to prevent him from doing so. This is and will remain the essence of our practical dealings with tuberculosis as long as no direct means of protection have been devised. We have not heard again about Behring's antitoxic milk. However, it seems more than ever possible now to arrive at a certain and innocuous method of vaccination. The publications about the successful and absolute vaccination against tuberculosis of the most susceptible animal, the guinea-pig, that appeared lately, make it only a matter of time before such a method will be applied with the same safety as vaccinia to the human race.

A few words may be said here on the ideas coming into the foreground during the last year, and dealing with the modern aspect of exterminating infectious diseases altogether. After all other attempts had failed, and after we learned the reason why they must (at least now and then) fail, Koch's conception has come to the front, asserting that only the infected individual can cause infection. According to the way in which the infectious agent is liberated from his system, the methods to protect others must vary; but there is only one leading principle in all of them—its destruction as soon as it leaves the patient or while it is still in his body. While it will be impossible to do away with infectious diseases by general sanitary measures, it becomes easily possible when the single patient is kept during the time he is a carrier of the infectious agent in a way that he cannot transfer it to his surroundings. This simple and logical principle will have to battle against a great deal of sentiment, but if it comes to the problem of the protection of the population, the question will simply be: Shall we ruin it financially by measures of which we know that they cannot be reliable, or shall we force on the individual patient a personal restriction while he is a

danger to the community? Of course, for a long time yet, sentiment will be the superior, and so for a long time yet we will have infectious diseases.

As to the single infectious diseases nothing startlingly new has developed as far as their etiology and pathology is concerned. The sanguine expectations excited before by the study of the dysentery bacillus have not been fulfilled. It is, on the contrary, today very probable that dysentery is only a name for a variety of diseases etiologically different. This is certain for some forms by this time, and will most likely be proven for a still greater number. So far dysentery has only a bacteriologic interest; practically all attempts to utilize our knowledge for treatment, etc., have failed, as they must. If the bacillus is the etiologic agent in the disease the hope to obtain a curative serum has been from the beginning futile from what we know about the biologic qualities of the organism. That men of high standing, and believed to be familiar with these facts, could lend themselves to arouse hope in this line is surprising and at the same time regrettable. They cannot even claim a partial success. But might be adduced from the reports on successfully injected cases of dysentery. Bacteriology has nothing to do with these attempts, and has never attempted them.

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The subject of diphtheria has for a long time appeared as one of the most completely explored branches of the infectious diseases. Very lately, however, voices have become loud alleging that not everything is so simple, and that with the discovery of antitoxin not everything is done. There have appeared a number of cases of clinically and assumedly bacteriologically typical diphtheria that in spite of early treatment did not respond, although only a few of them resulted fatally. A careful study of the culture made from these cases revealed the fact that the supposed diphtheria bacillus was a so-called pseudo-diphtheria bacillus, resembling morphologically the first, but biologically very different. His toxin was different from that of the true diphtheria bacillus and not neutralized by the antitoxin produced by the latter. Clinically these bacilli suggest strongly diphtheria, and the antitoxin is inculpated for ineffectiveness. Of the authors that have worked on this subject, Alice Hamilton must be named in the first line. It offers a wide outlook for further investigations purely bacteriological, but also clinical and diagnostic. Whether it will in practice influence our dealing with the complex of symptoms called diphtheria we cannot say now.

Altogether new is the introduction of another protozoic disease into the catalogue of human diseases, that of trypanosomiasis, blood infections with a small flagellate that, most likely by toxic effects, almost invariably leads to death. Similar diseases were known for a number of years among animals causing immense losses and barring cultivation of large areas. Man seemed to be immune against these parasites until, especially by Castellani, the discovery was made of the presence of try-

panosomes in persons suffering from sleeping sickness. His results were confirmed and at the same time similar parasites found in the blood and the spleen of persons suffering from forms of so-called tropical fever, tropical ulcer, etc. The last year has brought a great number of contributions to the subject and made of it a new branch of parasitology that is assiduously worked on all over the world. The transmission of the disease is certainly done by insects, although no definite conclusions have been reached as yet, which has been done for one or two of the related animal diseases. Together with malaria and yellow fever trypanosomiasis will enter into the range of the most interesting and also important diseases.

Protozoic diseases lead the thought to the exanthemata, and in the first place to variola. Councilman's elegant work stands as yet unconfirmed, although the study of his and his colleagues' publications is so suggestive that it has taken a good deal of courage to ask for further evidence. Still this question must be put, and as long as there can be a doubt about the identity of the organisms described, a definite answer must be expected. Even with the working out of what appears a cycle of development no sufficient proof can be given as shown by the latest publications of Ewing on vaccinia. Further, more convincing corroboration is absolutely necessary before we can call variola a protozoic disease. The same obtains for scarlet fever and the formations described by Mallory. The interpretation given by Calkins on Councilman's organisms is made from an analogy of forms, but not from a knowledge of the life of these organisms. It is in agreement with his inclination to call certain formations in cancer cells parasites. Only one thing seems to crystallize out from all of this work undertaken with the view of discovering parasites, that is, that certain toxic effects may be followed by almost specific changes in the protoplasm and nuclei of epithelial cells; it is certain that the parasites of variola have not been found in that definiteness and variety in other conditions. Ewing has succeeded in producing them in the skin of a frog and the pictures represent almost all of the stages of the extra and intranuclear stages. Here, of course, an infection is excluded and we see only the effect of an intoxication.

Protozoa have been playing a great part also in another infectious disease, in hydrophobia. Negri, of Italy, has found what he believes to be protozoa in the nerve cells of certain portions of the nervous system of animals and men succumbing to hydrophobia. They are round or oval bodies, mostly acidophile, but are seen mainly in the cells of the hippocampus major, the cerebellum and in the medulla, although they occur in other areas also. Their size varies considerably and the author believes that he has seen stages of a definite cycle and even evidence of ameboid movement. As to both of these observations experience teaches how unreliable they are; it is, however, certain that these bodies

(Negri's bodies) are always present in hydrophobia and have not been found in other similar diseases. They are certainly only manifestations of degenerative changes of the protoplasm that in hydrophobia manifest themselves, as it seems, especially in this shape. The occurrence of these bodies is of a certain diagnostic importance, as they certainly strongly suggest death from rabies. They have the advantage that they are easily demonstrated even in material unfit for finer histologic examinations.

The greatest part of bacteriologic work during the last year was again devoted to the investigation of the immunity questions, that branch of biologic science that by Ehrlich has been extended to a science of general biologic importance. The material accumulated is so rich and diversified that if would be impossible to do it justice by a short review. The main trend, however, that the studies took and the conclusions at which they arrived may be briefiy represented here. It was directed by the attempts made by physical chemistry to class the processes going on in the reactions of immunity bodies on each other, for instance the neutralization of toxin by antitoxin, not as reactions of substances of strong chemical affinity to each other, but as those obtaining for instance for weak acids and bases. That means that the combination of the two did not occur under all circumstances in the same proportions, that it depended upon the concentration in the solution of these substances. In other words, the attempts intended to subject the immunity reactions to the law of Gulberg–Wage, and to consider the combination products as dissociable substances. Arrthenius and Madsen especially have constructed curves of the union of these substances perfectly resembling the curves obtained by the saturation of boric acid with ammonia. If this would be true, Ehrlich's theory would be in great danger of losing its strictly chemical character, and many experimentally established facts, we would easily explain after Ehrlich, would remain obscure. By ingenious and exceedingly tedius work Ehrlich had recognized the complexity of the diphtheria toxin, it was the basis of the grand building erected on it. He established, by taking the neutralizing dose of antitoxin as a standard, that different toxins varied in potency. He found the laws of this variation, and built upon them his methods for the determination of the efficacy of antitoxic sera. As said above, Arrthenius and Madsen based on experiments similar to those of Ehrlich believed to have found that the varying toxicity was due to the degree of dissociation occurring in more or less diluted solution. Without careful examination the picture given by them was so entrancing that at one stroke the whole of the immunity processes appeared fully accessible to pure physico-chemical methods. Theoretically, however, the justification of such a method was to be considered; the chemical nature of immunity products is unknown, from their physical properties we must believe that they are colloidal substances. On the other side, the cal-

culations of the Swedish authors were undertaken with the assumption that they were well defined chemical substances for which alone the law mentioned can obtain. The latter does not hold good for colloidal substances, and therefore any calculations made on this assumption were from the beginning theoretically wrong. As beguiling as the prospect would be, to look at the immense complexity of immunity reactions as easily controlled physico-chemical problems, the theoretic fundament for it does not exist. Besides, there were known even before this work was published, phenomena that impossibly could be reconciled with the existence of dissociability in those processes. The work of these authors has, furthermore, had the merit of having stimulated an endless series of investigations during this year that finally and entirely did away with the assumption of dissociability and conclusively proved that antitoxin and toxin and amboceptor and receptor form firm combinations which it is impossible to dissociate by changing the degree of concentration. To refer to this work in detail would fill a small book, and cannot be done here. It must be sufficient to say that by the work of Ehrlich, Morgenroth, Dungern and many others, among them Madsen himself, evidence has been brought together of such conclusiveness that the discussion has been closed. It appeared as a spite of fate that after this closure a publication came out, written by Calcar, that made all this work unnecessary, as by a simple experiment it showed that in diphtheria toxin the several constituents so far only recognizable by their antitoxin-binding capacity in the infected animal could be easily isolated by filtration through a semi-permeable membrane. Toxin and toxoid do not exist only in imagination; they are today substances obtainable isolated.

This result of the long fight has, of course, resulted, for the present, in a complete confirmation of the correctness of the direction that the investigation on the basis of the side-chain-theory has taken. The number of remarkable and astonishing facts that have been added to the great picture is enormous. The thing most remarkable is that, so far, not a single fact is known that does not snugly fit in the result of Ehrlich's life-work.

And this might end my review, if it would not appear suitable to bring an appendix tending to show that all of this work finally results also in practical consequences. I refer to the necessity of being fully familiar with these theoretic investigations before applying them in certain directions for serumtherapeutic purposes. The limits, of course, that for them obtain have been recognized long since; the hopes for the production of curative sera are very narrow. They have become still narrower by the exact understanding of the action of these sera. We now know that only antitoxic sera can be of benefit, that in bactericidal sera we have a knife with two blades, that as well may cut the bacillus as the organism to be freed from it. We now know that many intoxications are not caused by a toxin excreted by the bacteria, but by their

disintegration within the body. Our bactericidal sera destroy the bacteria and offer them to the tissues for resorption of the disintegrated material. The animal injected with one fatal dose of a pathogenic bacterium, and at the same time given the corresponding dose of the bactericidal serum, will survive. If we multiply this dose over a certain degree, and even administer more serum than is necessary to destroy this increased number of bacteria, the animal will unavoidably die. The reason lies in the fact that the destruction of bacteria means a toxic effect on the organism in which they are destroyed. This phenomenon is designated as endotoxin-poisoning. The single fatal dose does not produce enough endotoxin to kill our animal, perhaps even the tenfold amount is not sufficient, but a limit comes where the endotoxins represent the fatal dose, and we have no means to counteract them. Wolff has lately exemplified this phenomenon by numerous experiments. It is of paramount importance for the practical use of these sera. To cure such an established infection by a serum is impossible; it may only be used up to a time where the number of bacteria have not multiplied within an organism to the degree that their destruction would result in the formation of the fatal dose of endotoxins. With this remark in view, all the attempts at serum treatment in typhoid, cholera, dysentery, etc., ought to be regarded.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

Among the most discussed subjects of the obstetrical literature of the year 1904 we find the question of the comparative value of Bossi's dilator and Duehrssen's vaginal Cesarean section in forced delivery. If, in an early stage of labor, a rapid dilatation of the cervix becomes necessary, we have at our disposal the following means: first, dilatation with the fingers, which is tiring and difficult for the operator and uneffective if the cervix is rigid to a pathologic degree; second, the use of the colpeurynter, undoubtedly a very useful instrument if it were not for the fact that it breaks easily and, therefore, is thoroughly unreliable; third, cervical incision, especially in the form which is now generally known as Duehrssen's vaginal Cesarean section, an operation which should only be performed in a hospital or well equipped private home and needs a good deal of trained assistance; and, finally, fourth, we can resort to rapid dilatation by means of instruments. It is obvious from this consideration that there is a good field for instruments,

such as the Bossi dilator, if they could be used without danger to the patient.

The first enthusiasm over Bossi's instrument, which, after all, is nothing but a modification of similar instruments in use long before Bossi, begins to vanish. We find in the literature of the past year numerous publications which record more or less satisfactory results with this instrument. The papers of Pollak (M. f. G.), Ehrlich (A. f. G. 73), Hohl (A. f. G. 71), are based upon personal experience with a great number of cases. Other papers by A. Parmenide Ricci (An. of G.), Sam. Gache (An. de G.), Zinke (A. J. o. O.), Ballantyne (B. J. o. O.), take the question up in a more critical way. All these writers emphasize the advantages of this form of quick instrumental dilatation, but they all dwell at length upon the danger of laceration. The Bossi dilator certainly does not comply with the one demand that must be made for such instruments, namely, that they should not harm the patient. There are numerous cases on record where severe hemorrhages followed the use of the instrument caused by tears in the parametrean tissue. In considering the dangers of the Bossi instrument, Bardeleben (A. f. G. 73) calls attention to the frequency with which, in patients in whom the Bossi instrument has been used, later deep lacerations of the cervix are found. Considering the frequency (75 per cent.) with which such lacerations lead to gynecological troubles, the author finds one more cause to warn against the use of this instrument. R. de Seigneux (B. J. o. O.) describes a new dilator, based upon the Bossi principle, which he used to good advantage. It may be interesting to note in this connection that Heller (A. f. G. 73) used Seigneux's instrument in inducing premature labor in cases of contracted pelvis, and considers the instrumental method preferable to the slower procedures with bougie or colpeurynter.

The possibility of producing deep and dangerus lacerations of the cervix by means of Bossi's, or similar instruments, necessarily led to a discussion of the possible advantage of cutting the cervix instead of risking the tear. The lateral incisions into the cervix, as first recommended, by most writers are objected to on account of the not uncommon experience that during delivery these cuts may continue to tear and injure large blood vessels in the parametrium. Hofmeier (M. M. W.) describes serious consequences of such deep lateral incisions in subsequent confinements caused by the scars, which prevent a proper dilatation of the cervix during labor.

The median incisions are rapidly gaining in favor, especially in the form in which they were first propagated by Duehrssen. Duehrssen's vaginal Cesarean section is an operation which has come to stay. It is today the recognized operation in malignant diseases of the cervix. It rivals with the Bossi dilator in all forms of forced delivery as necessitated by accidental hemorrhage, premature detachment of the placenta, etc. It is the operation of choice if the os is extremely rigid, because in

these cases the soft colpeurynter is ineffective, the Bossi dilator dangerous. Of greatest practical interest and most discussed we find the problem of rapid delivery by means of vaginal Cesarean section in eclampsia. As well known, all the common methods of accouchment force yielded in eclampsia so unsatisfactory results that for some time the classical, that is, the abdominal Cesarean section has been advocated and performed. It now seems to be the general consensus of opinion that Duehrssen's vaginal Cesarean section is the method of choice in dealing with severer cases of eclampsia. It is safe to say that this operation, at least as far as eclampsia is concerned, has passed the stage of experimentation. In premature labor it may be sufficient to split the anterior lip; in full term pregnancy both the anterior and posterior should be divided and a perineal incision made whenever the vagina is narrow or rigid. The fetus is removed either by means of the forceps or preferably by bimanual version. In a very exhaustive paper on eclampsia (97 pages) Zweifel (A. f. G. 72), supports vaginal Cesarean section, and so do Zincke (A. J. o. O.), Bacon (A. J. o. O.), Carstens (A. J. o. O.), J. M. Munroe Kerr (B. J. o. O.), Hammerschlag (Zb. f. G.), Ahlfeld (Zb. f. G.), etc. Duehrssen (Zb. f. G.) reports a case in which he, in the sixth month of pregnancy, performed this operation on account of a severe hemorrhage from placenta previa. Such a procedure can hardly be recommended for extensive use. We can understand that the inventor of this method attempts to widen the field of usefulness of his operation, but we hope that he will not find many followers. How dangerous such suggestions are is well illustrated in the history of the classical Cesarean section for placenta previa. It seems that this chapter is now definitely closed, and those who still have some doubts about the impropriety of treating placenta previa by means of abdominal Cesarean section, are referred to a paper of R. W. Holmes (A. J. o. O. Dec.) read before the Chicago Gynecological Society and the subsequent discussion.

Enthusiastic advocates of the classical Cesarean section, when endeavoring to increase the number of relative indications for this operation, never fail to quote Kroenig's claim that induction of premature labor on account on contracted pelvis is unjustifiable, because of the high fetal mortality attending such a procedure, and Zweifel's assertion, that of 100 premature babies not one is alive at the end of the first year. It is always a difficult task to eradicate erroneous statements if made by recognized authorities with a certain positiveness. We have to expect to meet with the two statements mentioned here for some time to come, although we find in the literature of the past year four papers which convincingly demonstrate that both Kroenig's and Zweifel's claims are unwarranted. Lorey (A. f. G. 71), records carefully the fate of 100 cases of premature induction of labor for contracted pelvis. The fetal mortality in this 100 cases was 40 per cent., certainly a high figure, but these same women had previously given birth to 207 children, with

an immediate fetal mortality of 78 per cent. These prematurely delivered babies showed during the first year a mortality of only 21.5 per cent., while according to the health statistics of the city of Halle, where these investigations have been made, the average infant mortality for the city is 24 per cent. for the first year of life. Almost identical are the results of researches made by Kroemer (M. f. G. 20), Hunziker (H. B. 9) and Richard C. Norris (A. J. o. O.), the latter giving expression to his personal opinion in the question by saying: "Cesarean section would have occasioned greater notoriety but not greater satisfaction to an earnest student of practical obstetrics."

It is probably better to attack wrong and dangerous teachings at once. The past year offers two good examples for this mode of procedure. We refer to a number of papers antagonizing articles of Hegar and Zweifel. The literature of the year 1904 contains numerous repudiations of Hegar's claim (M. M. W., 1903), that the repair of the perineum immediately after labor is an almost useless procedure. Probably the best answer to Hegar's attempt of overthrowing a time-honored principle of practical obstetrics is given by G. Vogel (M. M. W.). The great importance and advantage of immediate repair of the pelvic floor was duly emphasized in a symposium on this question at the last meeting of the American Gynecological Society in Boston. At this occasion Lapthorne Smith read a paper in which he goes so far as to advise to put the sutures in before the rupture really has occurred, namely, just before the head begins to press down upon the perineum. Of course such a procedure can hardly be endorsed, because it seems to be based upon the absolutely wrong assumption that we never can prevent a laceration.

Zweifel (Zb. f. G.) thinks that he can noticeably reduce the danger of a puerperal infection by carefully removing, one hour after the expulsion of the placenta, all blood coagula that have formed in the vagina. The author's intention is to transplant into obstetrics the principle of modern surgery: to prevent infection by exact control of hemorrhage. This suggestion of Zweifel was widely discussed and decidedly repudiated. A number of these articles can be found in the Zb. f. G. (Bockelmann, Mueller). In a very readable article Sigwart (Zb. f. G.) criticises strongly the modern tendency of preventing puerperal sepsis by making use of a very undesirable polypragmasia.

New light is thrown upon the etiology of puerperal infection by the investigations of Bumm and Sigwart (H. B., 8) into the relation between streptococci and puerperal fever. They found in 75 per cent. of all women during pregnancy and the puerperal state ærob streptococci in the vaginal discharge. They feel justified in assuming that if more suitable culture media were known, most probably streptococci could be found in all pregnant women. Why these streptococci only in a few cases show a deleterious action; whether the presence of another agent

is necessary, which prepares the soil for the further growth of streptococci; whether the virulence of the streptococci may be so variable that they, at times, may be harmless saprophites, at other times most pernicious germs, are questions that will have to be answered. With great satisfaction Ahlfeld (Zb. f. G.) accepts the report of Bumm's researches. He finds in them a most valuable support for his view, which he had to defend against many a vigorous attack, that auto-infection, especially during a tedious labor, is not uncommon and unavoidable.

This fact is also of interest from a medico-legal point of view (extensively discussed by Koestlin in M. f. G., 19), because in some European countries malpractice suits in cases of puerperal infection seem to be quite common.

Striking is the number of papers which are devoted to a consideration of the serum treatment of puerperal infection.

N. Raw (B. J. o. O.) employed 20 c.c. of the Marmorek serum twice a day in cases in which streptococci were found in the lochial secretion. He considers serum a most valuable addition to the known therapeutics in combating puerperal infection. Good results are reported by A. G. Hamilton (A. J. o. O.), and in a very carefully prepared paper by Walthard (Zs. f. G. 51), who recommends the use of the serum, if a thorough evacuation of the uterine cavity is not followed by a prompt fall in the temperature. Peham (A. f. G. 74) records very encouraging results from Chrobak's clinic in Vienna with an antistreptococcus serum specially prepared by Paltauf. The success seemed to be dependent upon an early use of the serum in a sufficient quantity (100 c.c. pro injection).

A very exhaustive study of the therapeusis of puerperal infection is presented by Sitsinsky (M. f. G. 20). The writer recommends the following mode of treatment for septic processes in the interior of the puerperal uterus: 1, Small uterine douche (about 1000 c.c.) with bichloride solution (1:1000); 2, free douche with hot (50° C.) sterilized water or boric acid solution; 3, drying out of the uterine cavity with gauze; 4, douche with 90 per cent. ethyl-alcohol. About 50 to 100 c.c. are kept for a few minutes in the uterine cavity by compressing the external os; 5, finally, drainage of uterus by introducing a strip of iodoform gauze. As Professor Ott, in a few introductory remarks, states this method was successfully applied in 210 cases of the Imperial Gynecological Institute of St. Petersburg.

In a very instructive article on pelvimetry, L. von Bylicki (M. f. G. 20) speaks plain truth about wrong ideas on the value and importance of pelvimetry.

There cannot be any doubt that the greater part of what we read in text-books of obstetrics on pelvimetry is untrue and exaggerated. It is hypocrysy to impress the student with the immense practical importance of exact measurements of the pelvis, because everybody, who is

familiar with the various methods of pelvimetry, knows that almost all of them are absolutely unfit for determining pelvic diameters with an exactness which could justify to apply the term "measuring" to such inaccurate "estimating." To be sure, there are one or two modes of pelvimetry which work with a tolerable degree of reliability, but they are too complicated for an extensive use. Nevertheless pelvimetry has its great practical advantages, namely, in ascertaining abnormal shapes of the pelvis, but not in determining the exact length of pelvic diameters, a knowledge of which will always be of limited practical value as long as we have no means of measuring the head of the unborn child. The great value, especially of external pelvimetry in the diagnosis of abnormally-shaped pelves, is, in our opinion, not properly emphasized. We should begin to repudiate writers who give us exact figures of the length of certain pelvic diameters as indicating or contra-indicating certain obstetric operations. In too many text-books and articles we meet with figures, accurate to a quarter of one centimeter, from which far-reaching conclusions are drawn, and if we investigate a little more carefully into the source of this impressively exact length of the true conjugate, we may find that it has been gained by subtracting nine centimeters from the measured length of the external conjugate, sometimes, the writer informs us, that in this particular case he has subtracted 10 cm. on account of the stoutness of the patient.

Bylicki describes a new instrument for ascertaining the length of certain pelvic diameters. His method certainly is not complicated, but it is not even theoretically exact. Some older methods have at least this advantage.

The etiology of eclampsia is still under discussion. Berkeley (B. J. o. O.) gives a good review of recent literature on this subject, but without drawing any positive conclusions. Veit's theory that chorionic tissue, carried into the maternal system, is the source of all the toxemic manifestations of pregnancy (Zb. f. G.) is decidedly gaining in favor. Probably the most interesting and important casuistic report in the obstetrical literature of the past year is one of Hitschmann (Zb. f. G.). A patient developed in the fifth month of pregnancy eclampsia, and expelled a hydatiform mole without any trace of a fetus. This observation positively sets aside the one strong argument of the defenders of the fetal theory in the etiology of eclampsia, that eclampsia never develops in the absence of a fetus. Hitschmann's observation must be regarded as the strongest proof that ever has been furnished in support of that group of theories which consider the ovisac the source of those toxic substances that are responsible for eclamptic seizures. Hitschmann does, however, not believe that his case could be accepted as a positive proof for the theory of Veit, because, in his opinion, the formation of syncytiolysins could never be brought in harmony with the fact that autolysins do not develop under normal physiological conditions. Hitsch-

mann considers his case unique. We came accidentally across a similar case reported by Raineri (Gaz. degli. Osped. e della. clin. rev. B. J. o. O.). Here eclampsia developed nine days after the expulsion of a hydatiform mole in the third month of pregnancy.

The question of heredity in the etiology of eclampsia, which was often discussed by older writers, was recently brought up again by L. Bagot (L'Anjou Medical), who observed eclampsia in a patient whose mother and sister were suffering from the same disease at the time of their respective first deliveries. The writer does not attempt to decide whether in such cases a peculiar irritability of the central nervous system or a functional insufficiency of one of the eliminating organs is inherited.

Two new methods have to be recorded in the treatment of eclampsia, namely: Lumbar puncture and decapsulation of the kidney.

Concerning lumbar puncture, the interesting fact must be stated that this method was almost simultaneously recommended in America, England and Germany. R. M. Wilson (J. A. M. A), in an article dealing with the pathogenesis of uremia and eclampsia, expresses the opinion that intracranial pressure plays an important role in the production of the uremic and eclamptic condition, and that by lumbar puncture, at least temporarily, some of the symptoms could be relieved. T. A. Helme (Brit. Med. Jour.) holds an almost identical opinion. Kroenig (Zb. f. G.) placed his theory on firmer grounds by really measuring the pressure of the cerebro-spinal fluid in the subarachnoidal space during eclamptic seizures. He found it considerably increased, and, therefore, felt justified in draining, by means of puncture, in several cases from 37 to 47 c. c. The operation did not show any distinct immediate effect. All the patients, however, recovered. Nevertheless, Kroenig is very guarded in his final conclusions.

From the post mortem findings in the kidneys of a woman who had died under the symptoms of anuria during an attack of eclampsia, Sippel (Zb. f. G.) concludes that the anuria was caused by an acute increase in the volume of the parenchym, producing a high tension in the renal capsule. From this observation he feels justified in advising for similar cases an incision of the fibrous capsule in order to avoid complete anuria. It is obvious that Sippel is not acquainted with the work of Edebohls in New York, who, at the last meeting of the American Gynecological Society, reported his second case of puerperal eclampsia successfully treated by renal decapsulation.

Mention must be made of several papers which record very favorable results from the use of thyroid extract in the treatment of eclampsia. [Nicholson, Sturmer and Berkeley (in B. J. o. O.), Baldowski (in Russki Wratsch.)]. McNab (B. J. o. O.) administered with good effect 65 grains of the extract in two pints of saline solution hypodermically.

Based upon animal experimentation, Blumenreich and Zuntz (A. f. G.) propounded the theory that there exists a characteristic and peculiar

susceptibility of the central nervous system of pregnant women to all those toxic substances that are liable to produce convulsions. They had observed that the toxic effects of injections of kreatin into the brain were more marked in pregnant than in nonpregnant bitches. B. Wolff (Zb. f. G.) contradicts this theory. He acknowledges that the central nervous system of the pregnant woman is in a condition of greater irritability, but denies that this irritability is in any way specific for certain poisons.

That there are physiological relations existing between the nose and the genital organs was known for some time. The question of the connection between certain nasal disturbances and dysmenorrhœa has been widely discussed in recent years, and a nasal type of dysmenorrhœa seems today positively established. H. W. Freund (M. f. G. 20) investigated the relation between the nose and pregnancy, and found in a hundred pregnant women sixty times a hyperemia of the mucosa of the pharynx and hypertrophy of the turbinated bones, especially the lower. He noticed that in certain women a reflex hyperemesis may be started from swellings of these parts, and may be successfully relieved by a proper treatment of these nasal lesions.

Retention of urine and the necessity of catheterization is always an annoying complication of the puerperal state. The various explanations given for this condition, as paresis of the detrusor urinæ, spasm of the sphincter, insufficient abdominal pressure, the dorsal posture, etc., are unsatisfactory and applicable only to certain cases. A more satisfactory interpretation of the puerperal ischuria is offered by Carl Ruge (M. f. G. 20). Systematic cystoscopic examinations after confinement (first made by Stoeckel), showed that the bladder immediately after labor presents almost typical lesions, consisting mainly in small hemorrhages in the trigonum and at the neck of the bladder, often followed by an edema bullosum. It is very probable that these lesions are responsible for the retention of urine. This explanation seems at least more plausible than the one recently given by Ch. B. Reed (A. J. o. O.), for the ischuria, so often seen in retroflexion of the gravid uterus. In his opinion it is due to interference with the nerve ganglia that supply motor and sensory filaments to the bladder wall. He contends that when the incarcerated uterus reaches a certain size it impairs the function of these ganglia by pressure.

Very often the physician is confronted with the task to diagnosticate a past pregnancy. Physical signs are absolutely unreliable. Of greater practical importance is the microscopical examination of uterine scrapings. Naturally the presence of chorionic villi furnishes positive proof, but they degenerate in a very short time, often even before the ovum is expelled, and then offer considerable difficulty for diagnosis. Decidua was, for a long time, looked upon as tissue absolutely characteristic for pregnancy until Ruge demonstrated in chronic endometritis cells that

cannot be differentiated from decidua cells. Considerable interest was, therefore, aroused by a paper of Opitz (Zs. f. G. 42), in which he described certain changes in the glands of the endometrium which he considered conclusive for the diagnosis of a past pregnancy. Seitz (Zs. f G. 48), first called attention to the fact that such glands can be found in the endometrium, independent from pregnancy. A lively polemic followed, in which it was duly emphasized that this question must be definitely settled on account of its bearing upon medico-legal decisions. Schallehn (M. f. G. 19), thinks that the diagnosis of pregnancy can be made positively when in the same scrapings both decidua and these "pregnancy glands" are found. Hitschmann (Zb. f. G.) describes the histological findings in two extirpated uteri. In one he found a young pregnancy without any indication of "pregnancy glands," in the other typical glands in the absence of pregnancy. Hitschmann mentions in this article that such changes in the endometrial glands seem to occur under the influence of menstruation, and this idea is strongly supported by investigations of Schwab (Zb. f. G).

The difficulty of making a positive diagnosis of an existing pregnancy in its earlier stages is, in Sarwey's opinion, (Zb. f. G.), obviated by his observation that the fetal heartsounds in almost all cases can be heard as early as the thirteenth week of pregnancy, that is, seven to eight weeks earlier than the text-books state. If the writer's claim would prove true it undoubtedly would mean the addition of a most valuable aid in the early diagnosis of pregnancy. Interesting is an article of v. Herff (C. Schw. A.) in which he expresses his doubts about the reliability of Sarwey's observations. At several occasions, after abortions or operations for ectopic pregnancy, he had tried to auscultate the heart of living feti of twelve to sixteen weeks, but he was never able to hear heart sounds.

It is obvious that a definite opinion about the real value of certain gynecological operations, especially of those that bear the epitheton "conservative," cannot be gained until they have stood the crucial test of pregnancy. Cervix amputations have become rarer, and a number of the numerous operations for malpositions of the uterus have disappeared. A good resume of the present status of the question of complications during pregnancy and labor after hysteropexy is given in the papers of Lynch (M. f. G. 19), Sonnenfeld (M. f. G. 19) and Oui (An. de G., an English translation of the article in An. of G.). We had occasion to refer last year to the danger of rupture of the uterus after conservative myomectomy, and find in the literature of the year 1904 a very instructive article by Fellenberg (A. f. G. 71), in which he considers the etiological significance of uterine scars, caused by gynecological operations, in rupture of the uterus during labor. The sad fact must be recorded that there are already two cases known in which uterine rupture occured after Cesarean section performed, according to

Fritsch's suggestion, with the transverse fundal incision. (Kerr in B. J. o. O. and Eckstein in Zb. f. G.). These two observations effectively set aside the claim made for Fritsch's operation that it never will cause a rupture in the old scar, as had been observed after the classical operation with a median incision.

Halban (M. f. G. 20) calls attention to another probable cause of uterine rupture during labor which so far has escaped consideration. He found in a pregnant uterus enormous phlebectasies and demonstrates the great clinical importance of this rare condition in so far as it not only causes a dangerous friability of the uterine wall, but also may be responsible for an atonic hemorrhage after the expulsion of the fetus. E. Oswald (H. B. 8) convincingly shows that in certain instances the uterine wall is ruptured by manual removal of an abnormally adherent placenta. It is interesting to note that such an occurrence at times seems unavoidable even when the operation is performed with the necessary skill and care. This is another paper of considerable medico-legal importance, because, as can be seen from the complete bibliography compiled by the author, in a great number of these cases malpractice suits were instituted against the attending physician. N. Ivanoff publishes in the An. de G. a very exhaustive essay on the etiology, prophylaxis and treatment of uterine rupture, in which he gives short descriptions of 124 ruptures observed in 118,581 confinements of the Maternity Hospital of Moscow. He states that the majority of the ruptures occurring in cases of contracted pelvis are spontaneous, while the majority of those observed in cases of placenta previa, or transverse position, are directly produced by the operative interference.

Instances of pregnancy with more than four feti are rare enough to warrant a short reference here to the reports of such cases by G. C. Nijhoff (B. J. o. O.) and Baudoin (Gaz. Med. de Paris). Nijhoff describes a case of quintuplets, and adds a very good photograph, from which it can be seen that the placenta consists of one continuous cake, to which all five cords are attached. A study of the condition of the chorion showed that three amnion sacs were enclosed in one chorion and that of the two other sacs each had its separate chorionic cover. Thus it could be ascertained that three female feti represented uni-ovular triplets, while the fourth female and the one male originated from separate ova.

Baudoin collected from literature five cases of sextuplet pregnancy. Three of the cases are well authenticated. The most recent of these cases is the one observed by Vortisch in 1903 in a negress. This woman had in preceding pregnancies given birth to twins, triplets and quadruplets. In the last, the sixth, pregnancy she had conceived from another husband. Of the six infants five were male, one female. It seems probable that altogether three ova were impregnated.

In a case of uterus septus J. Paulin (Hospitalstidende, No. 6) had the unusual experience of delivering the second twin seventeen days after the first was born.

Most writers agree today that there is an essential difference between the ordinary carneous mole and the hematom mole, better known under the name of Breus' mole, who first described it. Rather unsettled, however, is the question of the formation of the hematom mole. This peculiar mole always shows a distinct disproportion between the large ovisac and the small fetus. This characteristic condition was by various authors explained as due to the sub-chorionic hemorrhages which stretch the membranes, by a persisting growth of the fetal membranes after the death of the fetus, by a secondary shrinkage of the fetus after its death or by the possibility that this mole formed in a primarily hydramniotic ovum. While, undoubtedly, proof has been furnished that all these different conditions may exist, in many cases a histological examination of the specimens showed that the formation of a typical Breus mole is dependent upon the presence of several of these factors. From a study of eight specimens and a consideration of the extensive literature on the subject, Taussig (A. J. o. O.) suggests the following mode of development: The fetus dies in the first or second month of pregnancy, the membranes continue to grow and a secondary hydramnios ovum is formed. Later the ovum as a whole shrinks somewhat. In this way folds are formed in the membranes, which fill with blood from the intervillous spaces and thus are still further stretched. Another theory is propounded by Bauereisen (Zs. f. G., 51). He sees the primary cause of the formation of this mole in a disease of the endometrium. The vessels carrying the blood from the intervillous spaces become blocked by deported chorionic villi. The contributing causes are primary hydramnios and a continuation of the growth of the membranes after the death of the fetus.

The literature of the past year contains a number of very valuable contributions to the physiology of the genital organs.

From careful investigations it was known for some time that the number of Graafian follicles contained in the ovary of the new born is larger than that of the ovary at the beginning of puberty. Nothing definite was known about the fate of the Graafian follicles and the ovum in the premenstrual life until Th. G. Stevens (B. J. o. O.) published the results of his researches concerning this question. The follicle matures to a certain degree, when by a kind of phagocytosis first the ovum is removed and, then, retrograde changes begin in the follicle. New connective tissue is formed which first fills and then contracts the cavity until a little scar is left. In contradistinction to the process as seen during menstrual life, in the infant the Graafian follicle does not rupture and no corpus luteum is formed It is rather doubtful whether this view of Stevens can be accepted in its entirety. At least, in all cases in

which impregnation takes place before the first menstruation, an occurrence, not by any means rare, the expulsion of a mature ovum from a ruptured mature Graafian follicle must be assumed. Interesting are the writer's allusions to the double function of the ovary during menstrual life in supplying sexual cells and producing some internal secretion. While the supply of sexual cells naturally is superfluous in the life of the infant, it seems to be proved by experimentation that the internal secretion of the ovaries plays an important part in the development of the female child. A good resume of the literature on internal secretion of the ovaries is given by H. Russell Andrews (B. J. o. O.) in an article which contains an exhaustive abstract of the classical work of L. Fraenkel on the function of the corpus luteum. We had occasion in our last year's report to dwell at length upon these extremely interesting investigations of Fraenkel which have been continued by him in the last year. In a paper read by the author before the Gynecological Society of Vienna (Fb. f. G.) he described additional observations in support of his theory that the corpus luteum is a gland with an internal secretion, that it sends cyclic nutritive impulses to the uterus, and effects the adhesion of the impregnated ovum in the uterine cavity.

A great obstacle has been thrown in the way of this theory by the work of Jankowski (Arch. f. Mikr. Anat. 64) which seems to demonstrate that the corpus luteum cells derive their existence from the theca interna. This membrane consists of connective tissue, that is, is of mesodermic origin. As yet we do not know, however, of any mesodermic tissue that would perform the function of secretion.

Most ingeniously planned experiments are described by Kurdinowsky (A. f. G. 73). He completely extirpated pregnant uteri of rabbits and succeeded in keeping them "alive," for several days in Locke's fluid. He produced contractions and was able to observe the entire act of expulsion of the feti. By his experiments he proved that the uterine contractions are dependent upon the local innervation and absolutely independent of the central nervous system. Incidently, he investigated the action of ergot, hydrastis, alcohol and other drugs upon the uterine muscle and established the most interesting fact that adrenalin, even in a solution of 1-10,000,000, immediately produces strong tetanic contractions of the uterus, and that its action upon the uterine muscle is undoubtedly much more intense than that of ergot or hydrastis.

A number of very carefully prepared papers were devoted to anatomical sujects. Jung (M. M. W.) gives a good description of the entire nerve supply of the female genitalia, while Hashimoto (H. B. 8.) studied their ganglia. It is noteworthy that the latter writer acknowledges the existence of the Frankenhaeuser ganglion in the cervix. A large monograph of R. Freund (published by G. Fischer, Jena.), is devoted to the circulatory system of the uterus. Gellhorn (A. J. o. O.) furnishes a valuable contribution to the development, anatomy and pa-

thology of the hymen. The anatomy and clinical significance of the ligamentum sacro-uterinum is at length considered by Sellheim (H. B. 8). Kroemer's (Zs. f. G. 52), very extensive article on the lymphatic system of the female genitalia, is instructive on account of its bearing upon the carinoma question.

The war between the advocates of the vaginal and the abdominal radical operations for uterine cancer is still waging. There can hardly be any doubt but that the abdominal route is fast gaining ground, but we still find men like Schauta, Ohlshausen, Winter, etc., as strong supporters of the vaginal route, that is, of the vaginal radical operation after Schuchardt. Of course, nobody admits any longer the propriety of the ordinary vaginal or abdominal hysterectomy. It is generally accepted that only operations which include a thorough eradication of both parametria, offer any chance for definite cure. The difference of opinion is now mainly concentrated around the question of the extirpation of lymphglands. Practically, nothing can be done in this respect through the vagina, but even the most radical of the abdominal operations do not permit of a complete removal of the lymphatic system of the uterus, and thus do not deserve the name "radical." This point is very forcibly brought out in a paper of Schauta (M. f. G. 19), which represents a very strong support for the justification of the vaginal operation even at the present day. Incidentally these most painstaking investigations of Schauta demonstrated that carcinomatous glands, secondary to uterine growths, may remain encapsulated and latent for a very long time, and may, after removal of the primary tumor, even undergo a necrosis and completely disappear. Schauta shows that the Schuchardt operation with the paravaginal incisions, permits the extirpation of the parametrium clear to the pelvic bones, just as the abdominal operations do. Considering the undeniable fact that the vaginal operations are attended by a decidedly smaller immediate mortality, Schauta seems justified in concluding that the vaginal is the route of choice in the extirpation of the carcinomatous uterus. Similar are the views expressed by Olshausen in a paper read before the meeting of the British Medical Association, by Winter (M. f. G. 19, p. 769), the well known authority in the cancer question, and by Kroemer in his article on the lymphatic system which was mentioned above. Additional support for the vaginal operations may be found in publications like that of Manteufel (H. B. 8), in which he describes metastases in the iliacal glands, and acknowledges the claim made by several writers, that the macroscopic inspection of the glands during the operation does not allow any reliable conclusions, since under the microscope carcinoma tistue may be detected in exceedingly small glands.

Mackenrodt (M. f. G. 19), in an answer to Schauta's paper, shows that the abdominal operation devised by him permits the extirpation of a group of glands that Schauta considers beyond the reach of any ab-

dominal operation. He, therefore, concludes that his operation finally will show results better than those which Schauta expects from his theoretical considerations. Nevertheless, he fully agrees with Schauta that there still exists a good justification for defending the radical vaginal operation.

As has been said before, the great majority of modern writers, give, however, preference to abdominal operations, among them chiefly to those devised by Wertheim and Mackenrodt respectively. Probably the next year will bring the decision in this question, because the five-year limit will have passed for a greater number of operations of this kind. At the last meeting of the Society of German Naturalists and Physicians Mackenrodt reported that since 1901 he had performed his operation on seventy-one patients with an immediate mortality of 19.7 per cent. Of the cases in which from one to three years have elapsed since the operation 77 per cent. are still free of recurrence. Wertheim announced at this occasion that of his patients 18.2 per cent. are free of a recurrence more than four years. Doederlein had used the vaginal operation up to 1902 and calculates his definite cures as 19.6 per cent. (according to Winter's form of calculation). In a rather superficial manner, John B. Deaver (A. J. o. O.) decides the question in favor of the abdominal route. In his paper no mention is made of the extended vaginal operation after Schuchardt or of the importance of removing the parametria when operating by laparotomy. He thinks that it is quite superfluous to remove the iliac glands, because in a few cases in which he had removed them he found them only inflamed and not cancerous.

If we understand the trend of thought in the latest literature on uterine cancer correctly it seems that the idea of a complete extirpation of all lymph glands and the connecting lymph vessels has been abolished. Some operators insist upon having certain groups of glands removed in all instances, without any consideration of their size. Undoubtedly the Mackenrodt operation is in this respect the most satisfactory one. All operators agree upon the necessity of a thorough removal of the parametrean tissue.

But as has been stated often and often, really satisfactory results cannot be expected from more extensive, from more dangerous, but only from early operations. How well founded this contention is, first expressed by Winter, is most convincingly shown by his report on the results of his systematic fight against cancer in East Prussia. (Monograph, published by F. Enke.) This essay probably forms the most valuable contribution to the gynecological literature of the past year and was at length abstracted in the June number of this journal. (P. 384.) Winter has furnished the positive proof that by a systematic propagation of a better understanding of the first symptoms of cancer of the uterus among physicians, midwives and the laity much can be achieved towards inducing such patients to consult physicians in the earlier

stages of their disease. With just one year of this ingeniously carried on warfare the operability of patients suffering from uterine cancer has increased in Winter's clinic from 71 to 82 per cent., in the hands of all specialists operating in East Prussia from 52 to 65 per cent.

The lively discussion of the cure of uterine cancer by means of more or less extensive operations has almost completely suppressed a consideration of the important question, what should be done with those unfortunate patients to whom no hope, not even in the form of a possibly radical operation, can be offered. Very little has been written on this subject since Czerny read his most interesting paper before the German Surgical Association in 1900. That our customary views concerning the fate of the unoperated cases need some rectification is shown by Liek (M. f. G., 20). The immediate results of a prophylactic excochleation and escharization are good, but also the late results are not entirely discouraging. A few of the patients treated in this way did not die until one and a half, two years, one case even four and a half years after excochleation. Neither the age of the patient nor the general or local condition permit any conclusions as to the probable termination of her life.

We cannot close this review of the cancer literature of the year 1904 without referring to a series of most valuable and interesting papers published by John A. Sampson (J. H. B. and J. A. M. A.). He considers systematically the invasion of the surrounding tissues, parametrium, ureters, bladder and rectum, and elucidates numerous details of extreme practical importance in the radical operation. There are, *e. g.*, two articles upon freeing the ureters in which he emphasizes the importance of preserving the peri-ureteral sheat. He explains the frequency of serious cystitis after radical extirpation of the cancerous uterus, with parametrium and lymph glands as due to partial destruction of the blood and nerve supply of the bladder wall. He claims that much can be done to avoid this cystitis by catheterizing the patient regularly every three to four hours. We will mention in this connection two papers by Baisch (Zb. f. G. and H. B., 8) in which similar views are expressed. By means of experiments on animals this author shows that the cystitis will develop only if the bladder is injured; mere retention of urine, even with artificial infection of the cavity of the bladder, does not produce cystitis. He obtained very satisfactory results in preventing post-operative cystitis by following every catheterization with a thorough irrigation of the bladder with an antiseptic solution.

Another malignant growth of the female genitalia which at present holds the attention of the gynecologist is chorio-epithelioma. When first the true nature of this tumor was recognized and the number of reports of such cases began to grow rapidly, it was pronounced the most malignant of all new growths. In 1897 Eiermann collected sixteen cases in which a complete and permanent cure was obtained by vaginal

extirpation of the uterus. Later reports appeared of cases in which a complete cure followed operations in which it was impossible to extirpate all the diseased tissue. Of late the fact has been established that in some cases a typical chorio-epithelioma has disappeared spontaneously or after a simple curettment, which certainly is not capable of removing the tumor radically. Modern gynecologists cease to abbreviate the former term "chorio-epithelioma malignum" simply into "chorio-epithelioma," but begin to differentiate between a benign and a malignant form of this growth. Naturally, strong efforts have been made to find characteristic histological features that would enable us to decide the character of the tumor before operation. A number of papers are devoted to this interesting and extremely important subject. The question is apparently not yet settled. Hoermann (H. B., 8) thinks that neither the clinical picture nor the histological examination of scrapings give any clew. In a very exhaustive paper Hammerschlag (Zs. f. G., 51) arrives at similar conclusions. He cites the very remarkable observation that the primary uterine growth may disappear spontaneously or after curettment, while metastases of this growth may develop an extremely malignant character. Special stress is laid upon the possibility of a spontaneous disappearance of chorio-epithelioma in an article by Grein (A. f. G., 71). The results of the investigations of D. v. Velits (Zs. f. G., 52) will be of great practical value if they shall prove true. He claims to have found such a characteristic microscopic picture, consisting in either scanty appearance or complete absence of mitosis in the Langhans cells, indicating a reduced vitality of these cells in benign forms of chorio-epithelioma. This deficient mitosis is accompanied by an increase in the number of migrating cells, which, in his opinion, are the products of the necrobiotic process taking place in the tumor. Reeb (A. f. G., 71), Krukenberg (Zs. f. G., 53), and Littauer (A. f. G., 72), concur in the importance of a careful examination of all suspicious uterine scrapings in order to guarantee an early operation, which alone holds out some hope for a definite cure. They and other writers believe that even in those cases in which the microscopical examination of small tissue particles is only very suggestive, but not absolutely conclusive for the presence of a chorio-epithelioma, the uterus should be extirpated through the vagina without any loss of time in waiting for further developments.

There have been a few cases of chorio-epithelioma reported which are of considerable clinical interest. Hinz (Zs. f. G., 52) describes a typical chorio-epithelioma, with fatal metastases in the lungs and liver, that had developed in the stump of a tube, a part of which had been extirpated on account of a tubal pregnancy. McDonald (Albany Med. Annals) found a chorio-epithelioma in a myomatous uterus. Interesting from the point of differential diagnosis is a case of Hoermann (H. B., 8), in which a chorio-epithelioma perforated and caused a severe

internal hemorrhage, which naturally lead to the diagnosis of rupture of an ectopic pregnancy. It is noteworthy that such a perforation of a chorio-epithelioma into the peritoneal cavity may occur after very careful bimanual examination or the use of the uterine sound.

Two contributions are devoted to the etiology of this new growth.

McFarland (A. J. o. O.) bases an hypothesis concerning the development of chorio-epithelioma, or, as he names it, syncytioma malignum, upon the immunity theories of Ehrlich and Morgenroth. Positive evidence seems to have been brought that the introduction of almost any foreign substance into the body is followed by a defensive reaction which more or less successfully will counteract the eventual damage done by the presencs of said foreign substance. Such a defensive reaction may be general or local or both. It is now generally accepted that the trophoblast exerts an eroding effect upon the maternal tissues, and due to this action is the fact that syncytial tissue, which develops from the trophoblast, is found deep in the uterine wall. McFarland concludes that it is there held in bond and prevented from a further exertion of its destructive character by the defensive reaction on the part of the maternal organism. Do the maternal tissues fail in their antagonism, then the syncytium continues its eroding and destructive operation, and develops the characteristics of the syncytioma malignum.

In a rather peculiar manner Sfameni (A. I. de B. 40) attempts to explain the etiological relation between hydatiform mole and chorio-epithelioma. He tries to prove that the vesicles of an hydatiform mole constitute a new growth of *epithelial* character. He states that the interior of a vesicle is not made up of connective tissue, as is claimed by practically all authorities, but consists of degenerated epithelial cells. In his idea the one essential element in the formation of a vesicle is syncytium. He thus finds very little difficulty in proclaiming that hydatiform mole and syncytioma malignum are histologically identical. Those familiar with the literature on this subject will readily see that the author's views are diametrically opposed to those held by almost all modern writers. One cannot be surprised, therefore, when Sfameni concludes his article with the announcement that in another paper he intends to show that the syncytium originates from the uterine epithelium, or, with other words, that chorio-epithelioma is a malignant growth developing from maternal tissue.

Concerning the subject of chorio-epithelioma, the literature of the past year reveals the tendencey of differentiating a benign form of this, as a rule, malignant growth. Just the opposite inclination is manifest in the writings on the subject of myoma of the uterus. In our last year's report we had occasion to point to the efforts of many writers to demonstrate the malignant character of uterine myomata. The year 1904 did not bring any change in this course. C. Daniel (R. d. G.) found in 59 per cent. of all cases operated for myoma pathological con-

ditions in the tubes, such as catarrhal, parenchymatous and purulent salpingitis, hydrosalpinx, hematosalpinx, tuberculosis and extrauterine pregnancy. In 40 per cent. of the cases pathological changes were present in the ovaries. In the author's opinion the frequency of such alterations in the uterine appendages is to a great extent responsible for the frequency with which sterility is observed in such patients. This latter explanation can hardly be accepted, because the very carefully prepared statistics of Hofmeier have conclusively shown that fibro-myomatosis of the uterus has but a slight effect upon fertility. Additional proof for the reliability of Hofmeier's figures has only of late been furnished by Treub (B. de S. O.). Another dangerous and, as it would seem, very common complication of uterine myoma is described by Fleck (A. f. G. 71). He recorded pathologic conditions of the heart in 41 per cent. of all myoma patients. This figure is, in his opinion, still too low, because in a great number of cases the alteration is latent, consisting in a relative insufficiency of function, which only becomes manifest when increased demands, especially after operation, transform the relative into an absolute insufficiency. Richelot (An. de G., Dec. 1903) observed in his own practice three cases of malignant degeneration of the cervical stump, left after supravaginal amputation of the myomatous uterus. He quotes ten other well-authenticated cases of this kind from the literature, and concludes that a fibro-myoma actually predisposes a uterus for the development of a carcinoma. He considers any attempts of conservatism in dealing with uterine myomas as unjustifiable. Batigue (La G.) repudiates this extreme position of Richelot, and emphasizes the possibility that a cancer of the cervix may have been present at the time of operation. Of all the cases of Richelot only one, in his opinion, permits the assumption that the carcinoma really developed after the operation. That an existing cervical cancer may be overlooked is shown in an interesting report of Bland Sutton (B. J. o. O.). He performed total hysterectomy per abdomen for multiple myomas. A year and a half later in this patient a carcinoma developed in the vaginal scar. A microscopical examination of the old specimen now revealed the presence of a cancer in the cervix. But in the same paper the author puts another unimpeachable case of malignant degeneration of a cervical stump on record.

In an article on the malignant degeneration of myomas Haultain (B. J. o. O.) antagonizes the trend of modern writings. His explanation for this radical tendency is that "the intrepid gynecologist, glorying in the successes of modern surgical technique, loves to believe that fibroma pre-eminently predisposes to malignancy and must without exception be removed." The author does not believe in the malignant degeneration of the cervical stump, apparently because in one hundred (!) cases operated by him with supravaginal amputation of the uterus, such an occurrence never was observed. Many other arguments furnished by

this writer are absolutely untenable in the light of recent investigations. Thus he concludes, that a patient, if possible, should be kept in ignorance of the tumor, since "her life is in no way menaced by its presence." It is obvious that Haultain's article is hardly convincing enough to stem the tide. Practically all contributions to the myoma question advocate radicalism. McDonald (Albany Med. An.) gives very reliable figures as to the frequency of degenerations and complications of uterine myomas. He combines the statistics of Martin, Noble, Cullingworth, Scharlieb and Frederick and adds 280 cases of removal of the myomatous uterus in the service of the Albany General Hospital and twenty-six observations of myomas at post mortem examinations. The one practical conclusion he draws from these statistics is that all fibroids which produce symptoms should be removed at once. Ch. P. Noble (Am. M.),whose valuable contributions to this question have often been mentioned in this journal, defines once more his position. He believes that every fibroid of the uterus should be removed and that exceptions to this rule will be based upon the facts in particular cases—the small size of the tumor, its subserous development and the existence of complicating diseases which would render operation especially hazardous. At the last meeting of the Association of Obstetricians and Gynecologists (in St. Louis, reported in A. J. o. O.) R. B. Hall dwelt upon the reasons for an early operation. Th. B. Eastman answered in an instructive paper the question: Shall we remove all fibromata of the uterus on diagnosis, in the affirmative. In the discussion of these papers Carstens said that we ought to deal with a fibromyoma exactly as with the diseased appendix, that is, remove it at once. Pfannenstiel (D. M. W.) pleads for early and radical operation. "Just as for all other growing tumors it is the only rational method of treatment."

But even among those that stand for immediate removal of all uterine myomata a difference of opinion exists as to the kind of operation that should be performed, whether myomectomy or hysterectomy, and in the latter case, whether total or subtotal (supravaginal). The question between the two forms of hysterectomy will hardly ever be definitely settled. Both of these operations have distinct advantages and disadvantages, they give about equal results in the hands of operators who are accumtomed to the one or the other operation. The possibility of a malignant degeneration of the stump cannot be denied, but is probably so rare an occurrence that it hardly will be able to finally lead to a general adoption of the total hysterectomy.

Winter (Zs. f. G., 51) discusses the scientific principles underlying conservative myoma operations and defines them as follows: They preserve menstruation and the possibility of pregnancy. They prevent the disagreeable symptoms of artificial menopause. They do not remove the possibility of a recurrence. They do not offer any guarantee for a complete removal of all symptoms. They show, whether performed

through the vagina or the abdomen, less favorable immediate results than the radical operations. After a careful consideration of these points he concludes that in general we ought to be radical, that we are, however, permitted to perform a conservative operation if the patient desires the preservation of menstruation and her faculty of bearing children. Martin (M. f. G., 20) does not consider Winter's argumentation entirely convincing and still adheres to his belief that there is a good field for conservatism in myoma operations. J. W. Taylor (B, J. o. O.) on the other hand does not see any points in favor of conservatism and thinks that myomectomy should be limited to single tumors which are easily enucleable.

Even if the radical operation is performed the ovaries should, whenever possible, be preserved. Werth was the first to emphasize the advantage of such a practice, in order to avoid the troublesome symptoms of an artificial menopause. Soon afterwards it was claimed by a few writers that such conservatism only complicates the operation and does not bring the expected benefit, because these ovaries soon atrophy. These views seem to be confirmed in a very noteworthy monograph of Mandl and Buerger (published by F. Deuticke, Vienna), which deals with the biologic importance of the ovaries after removal of the uterus. Menstruation disappears, but the menstrual wave is preserved, at least for some time. As soon as the ovaries cease to functionate (cessation of internal secretion), the menstrual wave disappears and the symptoms of menopause become manifest. Keitler (M. f. G. 20), who also is interested in this question, calls attention to his observation that the ligation of the ovarian branch of the uterine artery during operation will cause a distinct alteration of the ovary, but that as a rule an atrophy is prevented by the existence of sufficient collaterals. That the preservation of functionating ovaries, however, in certain instances may have a very undesirable effect is clearly demonstrated in a case reported by Agnes Bluhm (M. f. G. 20). About one year after a vaginal panhysterectomy the patient began to suffer from severe pelvic pain, recurring every four weeks. The ovaries were finally removed by laparotomy. There was no more pain, but the characteristic symptoms of artificial menopause appeared promptly.

A very scholarly study of the literature on the question of spontaneous disappearance of uterine myomas before the menopause we owe to Alban Doran (B. J. o. O.). He distinguishes three different forms: (1) disappearance as the result of destructive inflammatory processes, which, probably, is the most common cause; (2) disappearance after delivery, when the fibroid shares the process of involution with the uterine muscle, and (3) true disappearance, independently from necrotic processes or pregnancy, or any operative or non-operative therapeutic interference. The author selects from the literature well authenticated cases

which prove the possibility of such a spontaneous disappearance or resorption. The occurrence is, however, undoubtedly a rare one.

We beg the reader's pardon for mentioning here an article entitled "The Added Proof," by Mary A. Dixon Jones. In this paper Mrs. Jones informs us that "by the microscope she was enabled to decipher the cause, origin and formation of fibroid tumors of the uterus." Among the authorities quoted by her we find besides herself "The Sacred Volume," "The Divine One," "The Great Apostle Paul" and others. This article could have found its worthy place in the "Funny Number," annually published by the *Muenchn. Mediz. Wochenschrift*, and we mention this contibution to gynecologic literature in this connection solely for the purpose of protesting against its publication in the September number of *Annals of Gynecology and Pediatry*.

It is an accepted fact that sometimes the cells of malignant growths will resemble not only the shape but even the function of the tissue in which they form. Thus, *e. g.*, Eiselberg reported a case in which, after the extirpation of a cancerous struma, the typical symptoms of tetany and cachexia developed, which disappeared when a metastasis of the malignant primary tumor formed on the sternum, and which promptly reappeared when this metastasis was removed. Similar observations were recorded for other growths. A number of writers described the new formation of Graafian follicles with ova in ovarian carcinoma. Liepmann (Zs. f. G., 52) had opportunity to observe such "follicles" in an adeno-carcinoma of the ovary. He emphatically denies the possibility of such a development of new ova, and shows that these formations, although in their appearance to a certain degree resembling ova, are simply products of a retrogressive metamorphosis. To almost identical conclusions comes Polano (Zs. f. G., 51) in a paper on pseudo-endothelioma of the ovary.

In the opinion of Alban Doran (B. J. o. O.) there is no special symptom or group of symptoms known by which a small, painful ovarian tumor could be differentiated from an inflamed ovary. Not all ovarian tumors are painful in their incipient stage, but if they are it is advantageous to the patient, because this fact may lead to an early diagnosis. If, in the case of an enlarged, painful ovary, bed rest causes diminution of pain while the ovary is observed to increase in size, the evidence for an ovarian tumor is strong but not conclusive.

A rather interesting theory concerning the causation of ectopic pregnancy is offered by Hitschmann (Zs. f. G., 53). He believes that the ovum becomes impregnated near the abdominal end of the tube. It moves through the tube into the uterus, while at the same time in the ovum certain changes occur that develop its faculty of imbedding itself. If for certain reasons the progress of the ovum on its way to the uterus is retarded, while its internal development advances normally, it reaches the faculty of imbedding itself comparatively too early, and

may settle down in the tube. Hitschmann's theory seems plausible, especially because it is based upon very painstaking investigations made in company with Lindenthal. His theory is in its main aspects almost identical with one advanced at about the same time by Keller. Another contribution to the etiology of tubal pregnancy is furnished by Hoehne (A. f. G., 74). He had the original idea of studying the anomalies in the course of the tubal lumen by injecting into it a stained substance consisting chiefly of glue. On transverse sections he could easily follow all the sacculations and branches of the tubal canal, and found in a number of specimens, examined in this manner, widespread canalisation of the muscular coat of the tube. The importance of this observation for the etiology of ectopic pregnancy is obvious. Interesting is the fact that all the tubes, in which such canals with an epithelial lining were found, showed distinct signs of old inflammatory processes.

Since the existence of primary ovarian pregnancy has been positively established, the number of well authenticated cases of this form of ectopic pregnancy is growing fast. Kantorowicz (V. k. V., No. 370) collects all the old cases and reports two new ones Other new cases are described by Micholitsch (Zb. f. G., Dec., 03), Boesebeck (M. f. G., 20) and Clarence Webster (A. J. o. O.). In presenting his case Webster refers to his belief, based on phylogenetic grounds, that the fertilized human ovum can only become attached to and develop in tissue derived from the Muellerian ducts. Ovarian pregnancy, whose existence was denied by many writers up to a recent date, does not necessitate a modification of his contention because there are a number of evidences on hand which prove the occasional extension of tissue of the Muellerian ducts into the substance of the ovary. Webster lays, in this connection, special stress upon the recent observations of Schmorl, Lindenthal and others concerning the presence of decidualike cells in the ovaries of pregnant women, which he considers to be detached Muellerian tissue.

The simultaneous existence of an intrauterine and an extrauterine pregnancy is a problem of extreme scientific interest. That it is not entirely void of practical importance can be seen from the fact that Simpson (A. J. o. O.) was able to collect 113 cases of this kind from literature. His paper contains valuable information concerning the diagnosis of this extremely dangerous complication of an intrauterine pregnancy.

We notice in the gynecological literature of the past year four larger contributions to the etiology and histology of vaginal cysts. Fredet (An. de G.) proposes the following classification: (1) Cysts of Wolffian origin; (2) cysts of Muellerian origin, that is, arising from the uterine-vaginal canal of Leuckhart; (3) cysts of peritoneal origin, arising from the embryonic cul-de-sac of Douglas, and (4) glandular cysts. The

cysts of Wolffian origin are the most common, they are situated in the lateral vaginal walls. Cysts of peritoneal origin are located in the posterior fornix, they are lined by a single layer of epithelium. The existence of glandular cysts cannot be denied, When arising from vulvovaginal glands they are situated low down in the vagina.

It is true that Waldeyer, Nagel, Gebhardt, Gegenbauer and others have asserted that they never have seen a vaginal gland; there are, however, a few cases described (Geyl, Poupinel, Davidsohn and others) which undeniably prove the presence of glands in the vaginal mucosa.

As a new, unimpeachable case of glandular vaginal cyst must be accepted, the one described by Widmer (H. B. 8.) Two other papers on vaginal cysts that convey similar ideas are published by F. E. Pierce (A. J. o. O.) and Emil Pollak (Zs. f. G. 52).

It is a generally accepted rule that whenever the abdomen is opened the appendix should be inspected, and should be removed if found diseased. In this way the decision whether an appendix is diseased or not is necessarily left to a macroscopical inspection. From careful histological examinations of 200 appendices, however, Reuben Peterson (A. J. o. O.) is forced to conclude that the mere shape or length of an appendix cannot serve as an index of its normality or disease. On the other hand, he found that in nearly 50 per cent. of all laparotomies performed for other reasons than appendicitis, the appendix was found microscopically diseased. Peterson, therefore, feels justified in advocating the removal of the appendix as a routine procedure during laparotomy, if not special contraindications exist which prohibit a prolongation of the anesthesia.

J. M. Baldy (Am. M.) holds quite antagonistic views. He cannot understand why so many surgeons worry themselves about the relation between inflammatory processes in the appendix and those in the right tube. In his belief these two conditions are absolutely independent from each other, and, if found in the same patient, their co-existence is a mere accident.

Finally, we have to consider the literature on the subject of malposition of the uterus. It would seem that a little less has been written during the past year upon this favorite topic.

Winter (Graefe Sammlung, 1904), gives a very clear and complete resume of the causes of prolapse, and sees one of the most important factors in its etiology in a too rapid stretching of the vagina during confinement. This is, in his opinion, often caused by a too early pressing on the part of the patient or a too hard pulling on the part of the physician. He recommends immediate and careful repair of all injuries of vagina and perineum. Buerger (A. f. J. 73), concludes that the atrophy of the muscles of the pelvic floor, which is never missing in cases of prolapse of the uterus, is not, as generally thought, a secondary

condition but the primary cause for the descensus of the organ. One of the main supports for his theory he finds in the abscence of a muscular pelvic floor in cases of total prolapse of the uterus in new born infants or nulliparae. Schaeffer (A. F. G. 71), on the other hand, believes that local disturbances in the blood circulation furnish the primary cause for the development of this malposition of the uterus.

A number of new operations have been devised for the correction of a retrodeviation of the uterus. It would be hardly possible to describe here any of these procedures, which, at the most, consist in the formation of a still more complicated loop in the round ligaments. A good general survey of all the various methods in use, with a description of the author's new Auto-Plastic Suspension, can be found in an article of F. H. Martin (A. J. o. O.). A "new" mode of intra-peritoneal shortening of the round ligaments was described by Menge (Zb. f. G.). In an article, appearing shortly afterwards in the same journal, Kleinwaechter ironically remarks that probably every reader of Menge's paper, who is somewhat familior with gynecological literature, must have felt, as he himself did, namely, that Menge's new operation is quite an old one—it is identical with the operation invented and described by Palmer Dudley of New York in 1890.

In concluding this article it is hardly necessary to state that no attempt was made to give a complete review of the obstetrical and gynecological literature of the year 1904. We trust that we have not overlooked any contributions of real importance, and thus succeeded in our aim to outline within the given limited space the advance made during the past year in these branches of medicine.

BIBLIOGRAPHY.

If not otherwise indicated the articles quoted in this review have appeared during the year 1904. The following abbreviations were used:

A. f. G.—Archiv fuer Gynaekologie.
A. I. de B.—Arch. Ital. de Biologie.
A. J. o. O.—Amer. Journal of Obstetr.
Am. M.—American Medicine.
An. de G.—Annales de Gynec. et d'Obstetr., Paris.
An. of G.—Annals of Gynec. and Pediatry.
B. de S. O.—Bullet. de la Soc. d'Obst. de Paris.
B. J. o. O.—Jour. of Obst. and Gyn. of Brit. Emp.
C. Schw. A. — Correspondenzblatt Schweizer Aerzte.
D. M. W.—Deutsche Med. Wochenschr.
H. B.—Hegar's Beitraege zur Geb. u. Gyn.
J. A. M. A.—Jour. of Am. Med. Assn.
J. H. B.—Bullet. of Johns Hopkins Hosp.
La G.—La Gynecologie, Paris.
M. f. G.—Monatsschrift fuer Geb. u. Gyn.
M. M. W.—Muenchn. Med. Wochenschr.
R. d. G.—Revue de Gyn. et Chir. Abdom.
V. k. V.—Volkmann's klinische Vortraege.
Zb. f. G.—Zentralbl. fuer Gynaek.
Zs. f. G.—Zeitschrift fuer Geb. und Gynaek.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

FEEDING OF INFANTS.—The literature, as usual, has contained a great number of articles on this subject. Comparison of statistics of mortality of breast and hand-fed infants[1] show that despite the advances in substitute feeding, the artificially fed child is still at an enormous disadvantage. Chapin[2] contributes an interesting article on the influence of breast feeding on the infant's development. The mother's milk is a food that adapts itself to the infant's developing intestinal tract, and so the difficulties in artificial feeding are not merely, as is so often assumed, chemical. They are largely due to physiological differences between human and cow's milk. In artificial feeding we must attempt to aid the developmental processes, and so in the art of feeding it is necessary to do more than find a food that will agree. Mere gain in weight is not always a satisfactory criterion. Bunge[3] as the result of careful analysis of a large series of cases, emphasizes the "hereditary influences" of the inability to nurse. He finds that chronic alcoholism in the antecedents is a potent factor in the production of this inability, which he believes to be steadily on the increase. Levy, in a thesis on Cytoprognosis of Lactation[4] says that a high proportion of polymorphonuclear neutrophiles in the colostrum (centrifugalized), is a sign that there will be an abundant secretion of milk, while a high percentage of lymphocytes is a bad sign. He advocates the examination of the breast fluid in this way, just before lactation is established, in order to form some idea as to the probability of the mother's being able to nurse.

ARTIFICIAL FEEDING.—The importance of securing clean milk for any system of modification, is everywhere insisted upon.[5, 6] Boston has even established a municipal bacterial standard[7] of 500,000 bacteria to the c. c., to which all milk vendors must conform, on penalty of losing the license. While this bacterial standard is much lower than that adopted by the private milk commissions of many cities[8], it is, nevertheless, a long step forward toward the solution of the question of the control of the milk supply of cities. So far as exact methods of modification are concerned, it is now generally admitted that home modification with milks and creams of known fat strengths is very satisfactory[9]. It is of interest, in connection with the question of laboratory modification, to note the opinion of one of Germany's leading pediatrists, Stoeltzner, of Berlin. He has this to say, in reviewing an article of Rotch's[10]: "It appears very questionable to the reviewer, whether the good results obtained are due essentially, as the American authors would have us be-

lieve, to the laboratory modification, *per se*. The dairies in connection with the laboratories, furnish an extraordinarily clean milk, which can be shipped for great distances without previous sterilization, without deterioration. The use of such milk, without any modification, would probably give excellent results."

In an article on "Milk for Infants and Infant Mortality," Behring[11] insists that milk ought to be given to infants raw. The heating of milk destroys the tubercular immune bodies. If raw tubercle-bacilli free milk cannot be obtained, he would advise the addition of formalin to the milk in the proportion of 1 to 10,000. This prevents the multiplication of germs. Experiments on *calves* showed such milk to be absolutely harmless. In view of the attitude of most municipal health boards, who provide punishment for dairymen who formalinize their milk, this view is worthy of note.

Price[12] made a series of experiments on calves to determine the comparative digestibility of raw, pasteurized and sterilized milk. His general conclusion was that the raw milk was much the more digestible. In connection with the question of raw milk it is of interest to note that Halipre[13] insists upon the advantages of clean *raw* milk, from tuberculin tested herds. Coming from a well-known pediatrist of the French school, which has heretofore insisted upon the necessity of absolute *sterilization* of all milk, this must be regarded as a great concession. Backhaus,[14] while admitting that aseptic milking may do away with the necessity for sterilization, believes that ordinarily it would be dangerous to give raw milk. He thinks that pasteurization renders the milk indigestible, and insists upon sterilization to 102° C., the milk to be kept at this temperature for fifteen minutes, and then rapidly cooled.

The value of buttermilk as food for infants, previously alluded to in these reviews, is attested by many observers.[15] While it appears to yield particularly good results in the treatment of gastro-enteritis, it may also be used to advantage, at times, in the feeding of healthy infants.

As the result of one hundred experiments on infants from sixteen days to two months old, with reference to starch digestion, Shaw[16] concludes that the saliva of very young infants contains a diastasic enzyme capable of converting small amounts of starch; that this diastasic action may continue in the stomach as long as two hours after feeding; and that on physiological grounds, therefore, there is no reason why infants cannot digest small amounts of starch.

Nobecourt and Vitry,[17] as the result of a series of observations, believe the giving of sodium chloride to poorly nourished breast-fed children to be of distinct value. A decided gain in weight is usually noted. About 1.0 per day, in divided doses, should be given in water before nursing. Poynton[18] has found that the addition of citrate of soda to cow's milk, in substitute feeding, helps to render the curd more easily digestible.

General Hygiene.—The first International Congress for School Hygiene was held at Nurnberg, Germany, in April. Detailed abstract of the transactions is impossible here. Those interested may consult the complete reports in the German pediatric journals.[19, 20] The subject of school hygiene is attracting more attention than ever before. It is gratifying to note that, in America, the system of medical inspection of schools, which has yielded such excellent results, is being introduced in many of our smaller cities. It is already in vogue in nearly all of the larger ones.[21]

Diseases of the Newly-Born.—Brecelj[22] calls attention to a pseudo-diphtheritic symptom complex often seen in the newly-born. As a result of mechanical irritation there occur small erosions of the mucous membrane of the palate. Secondary infection, with membrane formation and constitutional disturbance, is then common. The picture thus simulates diphtheria very closely. Prophylaxis consists in the avoidance of too much swabbing of the mouth.

Kilmer[23] calls attention to the hematoma of the sternocleidomastoid muscle, caused by injury to that muscle during birth. The hematomata may occur along the whole length of the muscle, and are often not noticed until some time after birth. A characteristic torticóllis makes the diagnosis easy.

Specific Infectious Diseases.—*Scarlet Fever.*—The question of the specific etiological factor is still under very active discussion. Much literature has appeared concerning the role of the streptococcus. Many authors, among them Baginsky, of Berlin, are inclined to believe that scarlet fever is certainly a streptococcus infection, though the actual species has not yet been discovered. Jochmann[24], however, is of the opinion that streptococci do not play an important role in the etiology of scarlet fever, though he admits that streptococcus infection is a frequent and important concomitant of the disease. In the blood of 161 scarlet fever patients, examined early, he found streptococci twenty-five times. Of these, all but one died. Just before death, however, streptococci were found in the blood in at least half the cases. The tonsils are believed to be the port of entry. Streptococci are not believed to stand in causal relation to scarlatinal nephritis. Schamberg and Gildersleeve[25] think that neither the strepto- nor the staphylococcus can be looked upon as the specific agent. The diplococcus of Glass was found in only a very small percentage of their cases, and is not regarded as specific. These authors consider that Mallory's find[26] of a protozoan body, the "cyclaster scarlatinalis," is at least very suggestive. This same view finds expression elsewhere[27]. After a series of agglutination tests with the serum of scarlet fever patients, Dopter[28] claims that the non-specificity of the streptococcus is clearly shown. He, too, considers its role a purely secondary one.

In the course of an address on scarlet fever, Lauder[29] holds that the infection in scarlet fever is of naso-pharyngeal origin. The rash and the constitutional symptoms are believed to be manifestations of the bacterial toxæmia. According to this view the danger of contagion during the period of desquamation has been much exaggerated. His hospital cases are isolated during the early stages, when the naso-pharyngeal infection is at its height. A summary of the cases treated is given, and the original article is worthy of careful reading. Schamberg[30] contributes a valuable paper on the diagnosis of scarlet and scarlatinoid affections, in which the differential diagnosis of obscure and difficult cases is fully discussed. Uffenheimer[31] considers the relation between scarlet and diphtheria. The two diseases often coincide, but scarlatinal infection in diphtheria is much more serious than a diphtheritic complication of scarlet. He believes that tonsilitis in scarlet, *per se*, must be regarded as diphtheritic if Klebs-Loeffler bacilli are found, but he thinks that antitoxin should be used in all suspicious cases without awaiting the the result of the bacteriological examination. There are, however, unquestionably cases of scarlet, with formation of pharyngeal or laryngeal membrane, without the presence of Klebs-Lœffler bacilli. These are cases of streptococcic infection.

Schmaltz[32] notes the great frequency of complicating myocardial change in scarlet, for which we must constantly be on the lookout. Labbe[33] has made studies of the urine in scarlet and diphtheria. In scarlet there is a diminution in the amount up to the sixth day of the eruption, followed, then, by an increase. In diphtheria this fluctuation is not so marked. Urobilinuria is rare in scarlet, but is found in 87 per cent. of cases of diphtheria. Contrary to the generally accepted view, the author finds albuminuria to be rare in scarlet, even in the early stages, while it is very common in diphtheria. The diazo reaction is positive in 40 per cent. of the cases of scarlet, always negative in diphtheria.

Various reports on treatment with antistreptococcic sera have been made. Mackie[34] believes the serum to be of distinct value if given early. If, however, the first dose does not have a good effect the continued injection is not apt to be of value. Except for urticarial rashes, he has not seen any ill effects follow the injections. Heubner's impressions[35] in twenty cases are not so favorable. He believes that the treatment should be used only in severe cases, and early. The use of serum is contraindicated when there are multiple foci of streptococcic infection. Existing complications, endocarditis, arthritis, etc., are not affected by its use. Bokay[36] reports twelve cases treated with the Moser serum with good results, and Shaw[37] gives a complete review of Moser's work. With reference to the prophylaxis of scarlatinal nephritis, Buttersack[38] believes that urotropin is of great value. It should be given in appro-

priate doses, at the outset for three or four days, and again in the third week.

Diphtheria.—Prophylactic injections of antitoxin are lauded by Dubois[39]. Over 700 cases (mostly of acute infectious diseases) were injected. No diphtheria developed, and for the first time in years these wards of the hospital are now free from the disease. Zuppinger[40] reports that of 1,000 patients exposed to diphtheria and treated by prophylactic injections, only eighteen developed the disease. Of these, eleven had evidently contracted the disease before treatment, as the symptoms developed at once. Concerning these prophylactic injections, Netter[41] made the following statement at the International Congress of Hygiene: At the request of the Paris Pediatric Society over 11,300 prophylactic injections were reported from private and hospital practice. It is concluded that the injections confer an almost complete immunity, beginning twenty-four hours after the injections and lasting a month. All children exposed to diphtheria should receive injections, and in institutions these should be treated monthly, if diphtheria be prevalent, until the epidemic is thoroughly stamped out. The unanimous approval of the congress was had in the matter.

Concerning the bacteriological diagnosis, Czerno-Schwarz[42] says that there are unquestionably non-diphtheritic forms of membranous angina, laryngitis and croup. The presence of the Klebs-Loeffler bacillus, on the other hand, without the clinical symptoms is not enough to warrant the diagnosis of diphtheria. Healthy carriers of bacilli may, however, fall ill at any time, and it is certain that they may carry infection to others.

Methods, value and dangers of intubation are studied by Fischer[43] and Fairbank[44].

The "accidents" after antitoxin injection have been studied by Coldefy[45]. They consist of fleeting joint and muscular pains and skin eruptions. In tubercular patients, a severe febrile reaction may occur. No serious accidents have ever been proved to be actually due to antitoxin.

Comby[46] reports an interesting set of cases of diphtheritic paralyses cured by injections of antitoxin, offering an ingenious theory for its action.

Measles.—Variot[47] calls attention to the difficulty of diagnosis in atypical cases. Koplik spots have been found only rarely in his experience and in that of his colleagues. A mouth enanthem is, however, nearly always found, and this is a great aid. The rash is sometimes seen earliest in the parotid region. The purpuric form is not rare, and, *per se*, not so very grave. Mueller[48] finds Koplik spots in 80 per cent of his cases, but they are not pathognomonic, since they have been seen in roetheln. Nadoleczny[49] notes the great frequency of complicating otitis.

As a rule, though not always, this is benign. It is asserted by other authors, however, that 4 per cent. of deaf-mutism is traceable to measles.

Discussing the relation of measles and tuberculosis, Greze[50] says cases of pre-existent latent tuberculosis are usually aggravated, especially in early childhood, while manifest tuberculosis is always made worse by an attack of measles, Measles does not create tuberculosis, but it prepares the soil by its distinctive lesions and by the general weakness which it induces.

Reasoning by analogy from the good effects of the treatment of variola with red light, a number of Spanish clinicians[51] tried the same method in treating measles, They report the procedure as being quite without value, and very disagreeable to the patient besides,

Whooping Cough,—Porak and Durante[52] report an epidemic of pertussis in infants. Of ten cases, varying in age from one to ten months, seven showed pulmonary complications; two had congestion of the lungs, five had broncho-pneumonia, In view of the prevailing opinion of the high mortality of pertussis in very early life, it is noteworthy that *none* of these cases died, despite the complications. For the pertussis proper, treatment consisted in the use of belladonna and grindelia robusta. Eliza Root[53] calls attention to the fact that the mortality from pertussis is nearly as great as that from scarlet. Statistics from nine of the principal cities of the country showed 1,266 deaths from pertussis and 1,457 from scarlet in one year. She urges municipal control of this disease.

Among the therapeutic measures advocated of late by various writers may be mentioned: The use of an elastic abdominal belt by Kilmer[54], vaporized crude carbolic acid and formaldehyde by Melvin[55], and cypress of oil (20 per cent. alchholic solution) poured on the clothes and pillows of the patient[56].

Typhoid.—Adams[57] gives a resume of 537 cases, seen in childhood in three decades. In half the cases the course is mild. Relapses are common. Intestinal antiseptics are of no benefit. Reliance must be placed on hydrotherapy and good nursing. The mortality, by decades, was reduced from 30.7 per cent. to 11.1 per cent. The average mortality for the series was 14.7 per cent.

Mumps.—Taschner[58] reports a peculiar set of cases. Four members of one family, aged eleven, nine, seven and five years, had mumps, All of these developed endocarditis.

Vaccination.—Goldman[59] has been vaccinating patients under red light and covering the arms with red dressings. He has obtained typical vesicles without the constitutional symptoms which were constant in the control arms. It has been shown that the strength of the virus in the glycerinated vaccine lymph diminishes rather rapidly. Therefore it is suggested[60] to use the lymph at least four weeks old in the first vaccinations so as to prevent too great a reaction, and to use only the freshest lymph for revaccinations.

Tuberculosis.—Behring's pronunciamento that inhalation tuberculosis does not exist, that the primary infection always occurs in infancy and through the gastro-intestinal tract, continues to call forth a great deal of discussion. For a full review of this subject, the reader is referred to the department of pathology, in this issue. It may be noted here, however, that many observers have published studies, tending to controvert absolutely many of Behring's assertions. Thus Reyher[61] shows that Behring's (and Dissa's) statement that the intestinal mucosa in early life is not fully developed, is not correct. Fluegge[62] takes strong ground against practically all of Behring's assertions. Speck[63], basing his conclusions upon carefully compiled statistics, shows that milk infection can only play a small role in the origin of human tuberculosis. Westenhoeffer[64] thinks that infection through milk (and meat) cannot be of very great importance, even though the non-identity of human and bovine tuberculosis is by no means proven. Early childhood, about the time of dentition, is a time of great importance, for the child tends to put everything in the mouth, and infection through inflamed gums may thus easily take place. Cobb[65] thinks that the influence of milk in the spread of tuberculosis has been greatly exaggerated, because, in those countries where milk is used but little, or not at all, in infant feeding, and in others where it is always boiled before feeding, tuberculosis is just as prevalent as in countries where it is largely used. Hunter[66], in 5,142 autopsies in Hongkong, "in a population decimated by tuberculosis," found only twelve cases of intestinal tuberculosis, although 35 per cent. of the autopsies were on children under five years of age. As a result of his studies, Nathan[67] concludes that the view of Baginsky, that serous pleurisy does not stand in nearly as close relation to tuberculosis in childhood as it does in adult life, is fully justified.

Meningitis.—Squires[68] calls attention to the new diagnostic sign: rythmic contraction and dilatation of the pupil, frequently present as early as the fourth or fifth day. It is elicited by alternate flexion and extension of the head on the spinal column, with the child in a horizontal position. With reference to Kering's sign, Miller[69] says that it is present in the large majority of cases, though it may appear late. While its presence in suspicious cases speaks for meningitis, its absence, especially in the early stages, does not negate the diagnosis. Koplik[70] says that the Babinski sign is not as common in the epidemic cerebro-spinal form is in tubercular meningitis. MacEwing's sign—a hollow percussion note over the anterior horn of the lateral ventricle—is also of more value in the tubercular form. Fundal changes are also more common in this form. Lumbar puncture is not a curative, though it is often a palliative measure, in addition to being of diagnostic value. Huber[71] reports cases of otitis serous meningitis, where lumbar puncture appears to be of curative value.

Syphilis.—Francheschini[72] says that histological examination of the cord may give valuable information in doubtful cases, the lesions here being usually restricted to the vessels, and often antedating other luetic lesions by great periods of time. Schwab and Levy[73] consider hypodermic injection, the best method of treatment, even at birth. They use an aqueous solution of the biniodide, beginning with ½ milligram doses. Late hereditary syphilis is exhaustively studied by Abt[74].

Glandular Fever.—Trautman[75] says that this is only a symptomatic expression of infection of the naso-pharynx, of various types and not a disease sui gen eris.

Erythema Contagiosum.—Under this name, Escherich[76] has described an epidemic, contagious erysipelatoid eruption, in the faces of children, subjectively well. The eruption spreads over the body sometimes, may last six to eight days and is *not* followed by desquamation.

Rheumatism.—Winters[77] is still a believer in the chemical theory of rheumatism, holding that it is caused by non-neutralized products of proteid metabolism. Imperfect oxidation and defective elimination are important factors. Various authors[78, 79, 80, 81] emphasize the fact that the arthritic manifestations are at a minimum, the cardiac at a maximum in the rheumatism of childhood. Schaeffer[82] has treated six cases with anti-streptoccocic serum, with good results.

Diseases of the Digestive System.—*Intestinal Autointoxication.*—Comby[83] has made a careful study of this condition. In general terms, it may be said that its etiology is to be found in constitutional causes producing either a diminution in the destruction or an increase in the production of enterotoxins. In the diagnosis special stress is to be laid on the urinary examination, an increase in the ethereal sulphates being pathognomonic.

Pyloric Stenosis.—Opinion is still divided as to the relative frequency of true hypertrophic and spasmodic stenosis. The English school[84, 85] inclines to the belief that in the great majority of these cases there is a true hypertrophy, only to be relieved by operative interference. Stamm[86] believes that many of these cases depend upon spasm, possibly at least partially induced by the hyperchlorhydria which is so often present. Mery and Guillemot[87] also express skepticism as to the frequency of the true hypertrophic form.

Summer Diarrhœa.—The bacteriology of this subject is still being carefully studied. So far as the Shiga bacillus is concerned, it is now settled that it is responsible for a certain percentage of the cases. There are, however, no definite clinical forms of enteritis, and no distinctive pathological lesions which are directly attributable to this group organism[88, 89, 90, 91, 92, 93, 94]. Results of serum treatment have not been very satisfactory[95]. Nobecourt[96] has studied the various forms of streptococcic enteritis. All forms, from simple catarrhal dyspepsia to the fulminating, true septicæmic types, may occur. With regard to the

edema so often seen, it is to be noted[97, 98] that this may occur independently of cardiac or renal lesion, as one manifestation of profound disturbance of metabolism.

Ekiri[1 to 99] the discoverer of its specific cause, describes this disease, which is a form of epidemic entero-colitis, very prevalent in Japan.

Tubercular Peritonitis.—Recent evidence[100, 101, 102] tends to show that the results of medical treatment are *better* than those after laparotomy. This procedure should be limited to cases of the caseo-purulent form. In all cases medical treatment along the lines of modern treatment of tuberculosis should be tried first.

Appendicitis.—The difficulties of diagnosis in young children are everywhere alluded to.[103, 104] The objective signs are all important, the subjective symptoms far less so. The general consensus of opinion with regard to treatment is well expressed by the dictum of Brannan: "No cases are operated on too early, many too late."[105, 106]

Epidemic Catarrhal Icterus.—Nicholaysen[107] reports an epidemic of 123 cases, mostly in children. It is regarded as a specific catarrhal affection, directly transmissible from person to person.

Diseases of the Respiratory System.—*Pneumonia.*—Morse[108] says that lobar pneumonia is more common in infancy than is generally supposed, and gives an analysis of 118 cases. The mortality, excluding empyemia, was 23 per cent. The younger the infant the graver the outlook.

Winters[109] thinks that the prognosis of lobar pneumonia in early life is excellent—much better than that of bronchopneumonia. Various authors call attention to the difficulties of diagnosis in early childhood, noting particularly the obscurity of the physical signs. The onset is often marked by intense abdominal pain, simulating that of appendicitis.[110, 111, 112] Northrup[113] has a timely article on treatment, insisting on fresh air, regulation of the bowels, water internally and externally, quiet and rest, and prevention of intestinal fermentation. He does not think that heart stimulation is always necessary; if it be, he relies on whiskey and strychnia. Dessau[114] thinks that as pneumonia is a self-limited infectious process, antiseptic treatment should be employed. For this purpose he uses carbolic acid internally, a drachm of a 2 per cent. solution to a child of three every two hours. He uses hydrotherapy in addition. He reports excellent results.

Empyema.—Ausset[115] calls attention to great frequency of empyema, complicating the pneumonia of childhood. It is often overlooked because of the obscurity of the physical signs. It is always to be looked for in pneumonia with delayed resolution. Prognosis varies with the form, least grave in pneumococcus, always serious in streptococcic and always bad in the tubercular variety.

Enlarged Bronchial Lymph Nodes.—Friedlander[116] discusses the symptoms and physical signs of this very common condition. In ten cases

lymphocytosis has been a constant blood find and this may prove to be a sign of value.

Diseases of the Circulatory System.—*Acute Infectious Myocarditis.*—Forcheimer[117] says that this form of myocardial change is seen most often following diphtheria. Next to diphtheria, the process is seen most often as a result of influenzal septicaemia. Pathogenesis, symptoms and treatment are discussed.

Diseases of the Uro-Genital System.—*Primary Pyelitis in Infancy.*—Hartwig[118] asserts that this condition is not rare, that it often simulates typhoid. In doubtful cases its possible existence should be borne in mind.

Nephritis.—Fry and Martin[119] in urinary examination of 100 infants under three months found albumen in nineteen cases (seventeen of which had casts), while fourteen had casts without albumen. Urid acid was abundant in twenty-six cases, twenty-three of which showed casts. Of these sixteen died under the picture of nephritis. The author regards the association as significant. A summary of existing views of interstitial nephritis in the young is given by Hirsch[120]. Biedert[121] urges routine examination of the urine in all the acute infections, especially bronchopneumonia. Morse[122] reports a series of cases of nephritis from tonsilitis.

Enuresis.—Beilby[123] says that of seventy-five cases carefully studied, seventy-one were in boys. In all but four cases masturbation was practiced, a connection noted by Jacobi as long ago as 1876. Ostheimer and Levy[124] report ninety cases. Treatment employed was atropine, corrections of errors of diet, limitation of fluids in the evening and regulation of urinary hyperacidity. Lewis[125] advocates the withholding of all starchy foods at night. Cathelin[126] reports good results from his method of epidural injection, and Kapsammer[127] also reports a series so treated.

Nephrolithiasis. — Mousseaux[128] analyses fifty-seven cases of kidney stone in childhood. No special divergence from the picture as seen in adults is noted.

Diazo Reaction in Childhood.—Fischer[129] says that the reaction is positive in typhoid, acute miliary tuberculosis measles and typhus. In the other acute infections it varies. A negative reaction in the early days of a febrile condition practically excludes typhoid. A positive reaction speaks for the tubercular nature of a pleuritic exudate. A continued positive reaction is a bad prognostic sign in erysipelas and tuberculosis. A continuance of the reaction after the fifteenth day in typhoid indicates a severe case.

General Diseases.—*Rickets.*—Sobel[130] and Koplik[131] call attention to a sign of rickets (also described by Neurath), viz., a spindle-shaped thickening of the phalanges of the hand. Prechner[132] gives a complete resume of existing views on rickets with bibliography.

Scurvy.—Rochon[133] believes that scurvy is on the increase in France. The almost universal practice of sterilization of milk is probably responsible for this, for prolonged sterilization certainly diminishes the soluble phosphates and citric acid, and destroys the ferments. Breast feeding and feeding of raw milk were not causal factors in any of the forty-three cases studied. Morse[134] reports a number of cases in which haematuria was the earliest or only symptom of scurvy in infants. He says that scurvy is the most common cause of uncomplicated haematuria in infancy.

Lenndorff[135] calls attention to the value of the X-ray to clear up the diagnosis in obscure, doubtful cases.

The most important larger work on pediatrics issued during the year is the second edition of Grancher and Comby's "Traite des Maladies de l'Enfance." Four of the five volumes have already appeared, and this international cyclopedia may fitly be said to be an epitome of the pediatric thought of today.

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ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

THE NON-TUBERCULOUS JOINT DISEASES.

For a number of years the medical mind has been dissatisfied with its understanding of the so-called rheumatoid diseases, a dissatisfaction which has increased by the knowledge that the nomenclature used gave no common ground on which to explain or exchange ideas. It is certain that very many different conditions have been called by the same name, and it is also certain that the same condition has been given very many different names. In order to establish some system in this chaos many have been working, the vast number of joint conditions known as the non-tubercular joint diseases, have been grappled with on all sides; pathology, bacteriology, chemistry and the Roentgen ray have, on the whole, helped much, though at times their evidence has been contradictory. We must be rid of such terms as "chronic rheumatism" and "gout," used to designate affections varying from the infection of a joint by the gonococcus to Heberden's nodes. During the last year much has been done in the way of putting forth knowledge accumulated

in the clinic and laboratory during the last decade, and the number of articles, as well as the different fields of work represented by the authors, testify to the fact that the light is coming through, that after a few minor points in classification are settled the work may go on aided by mutual interest and understanding.

Goldthwaite[1] divides the field into five types and has given us the essential characteristics of each type; briefly they are as follows: The first, *the chronic villous arthritis*, or "dry joint." This is a local process with no tendency to progression, and is usually seen in the knee. Crepitation or creaking of the joint on motion, pain and tenderness on use, catching and even complete locking at times, with increase in the joint fluid, are the symptoms. The condition is the result of strain and weakness, the joint membranes become lax and congested, are thrown into folds which, being rubbed over each other become more swollen and fringes or villi result, these in turn undergo fatty degeneration and lipomata are formed or calcareous degeneration may take place and the bony or cartilaginous masses known as "joint mice," develop.

The second type, *atrophic arthritis*. The etiology of this type is not known, it is a progressive disease resulting in marked crippling and distortion, in which the essential pathological feature is atrophy, an atrophy which involves the joint membranes, the cartilage, and the bones. Many joints or only one may be involved, the disease may extend gradually for years. The finger joints are usually involved early in the course, and the middle row of phalangeal articulations is first affected, spindle-shaped swellings with pain and stiffness, resulting in distortion and ankylosis.

The third type, *hypertrophic arthritis*. In this class the bones are thickened, this thickening taking place at the edges of the articular cartilages or at the attachment of ligaments. The formation of ridges or nodes which become ossified and interfere with joint motion, is the essential feature of this type. In the finger joints, Heberden's nodes typify the process. It may be local or general, the spine is frequently the seat of disease and the fusing of the vertebræ and intervertebral discs may be so complete as to result in ankylosis. During the active or irritative stage of this condition pain of extreme and persistent character is present; it is usually referred pain due to pressure on a nerve, such as sciatica, intercostal or brachial neuralgia. Exposure to cold, strain and injuries are undoubtedly factors of importance in the etiology of this type.

The fourth type, *infectious arthritis*. With this type of disease the symptoms are those of infection, varying in severity with the organism of infection. There is local inflammation, the joint is swollen, the capsules thicken, but there is no change in the cartilage or bone unless the process is of a destructive nature. The organism may be present in the joint, or as in the case of the typhoid bacillus, the joint process may

consist of simply a toxemia. These cases may result in adhesions, weak, unsteady joints, or where the process is destructive there may be true bony ankylosis.

The fifth type, *chronic gout*. This is a rare disease, the pathology of which is little understood. The essential characteristics are the deposits of urate of soda in the soft structures about the joint and some bone absorption adjacent to these deposits.

Here we have a definite field divided into five sections, the only difficulty remaining is to classify the individual case and place him in his proper square. That there may be difficulties in doing this is evidenced by the fact that Bradford[2] writes that where as yet we know nothing absolutely of the pathological process, he considers it better to use a single name for all these conditions—excepting, of course, infectious arthritis due to a known bacterial agent—and suggests as a name "*arthritis deformans.*" He considers this name better, as it does not assume a pathological basis and does not prevent necessary subdivisions. He promises us a full report on a long series of autopsy findings in the near future; he is being aided in this work by E. H. Nichols.

McCrea[3] in an analysis of 170 cases, has gone over the pathology and etiology of arthritis deformans in a thorough manner and has made some interesting discoveries. As to the age of onset he found in 70 per cent. the onset was before forty years of age, and that in 50 per cent. it was before the age of thirty. This is clearly against the idea that these joint affections are the lot of old age. He came to the conclusion also that there are two great types of cases, the atrophic and the hypertrophic, which are varying manifestations of the same disease.

Morse[4] has written that in childhood the atrophic and the hypertrophic forms of arthritis are rarer than in adult life, as is shown by the literature, Koplik being able in 1895 to collect but eighteen cases, and Moncorvo, in 1901, but forty-eight cases. Undoubtedly many other forms of disease were included in their series of cases. The disease described by Still in 1896, and known as Still's disease, he classifies with infectious arthritis.

Poynton[5] has shown us how confusing the lack of a definite nomenclature is, he calls attention to the fact that we need to simplify our terminology. It seems that this would apply more especially to English writers on this subject, for in the British journals the confusion is so great that it is difficult to get any definite impressions.

Though the pathology of these affections, as well as the etiology of most of them, is still an unknown quantity, though many bridges must yet be built to carry us over differences of opinion, we have the comfort of realizing that the needed treatment has been made much clearer, and that the prognosis under treatment and without treatment is also clearer. Whatever ideas an individual may hold as to the scientific side of these cases, he must admit that the therapeutics have made a wonderful ad-

vance. Skinner[6], Goldthwaite and Kolipinski[7] have written excellent papers on the treatment. It is to be hoped that the attention of the profession in general will continue to be directed toward these cases and that as in the case of the kidney, we shall come to a thorough knowledge of the lesions down to all possible refinements, and that no longer such a term as "chronic rheumatism" will be applied to the many different diseases of the joints.

Chute[8] has pointed out the importance of making a diagnosis of hypertrophic arthritis of the spine in cases of urinary disease, many cases of supposed hypochondriasis or neurasthenia have had cause for their pain and have recovered when proper treatment has been applied to their spine.

Congenital Dislocation of the Hip.

In order to justly criticise an operation having the character of the Lorenz operation for congenital dislocation of the hip, it is necessary that the element of time play a part. It has now been two years since the visit of Lorenz to this country and during the last year reports of most of the cases that came under his hand have been given to the literature. Papers have been written which have called out the best opinion in America in animated discussion. Adverse and favorable criticism both have been unrestrainedly expressed. The Lorenz operation has been placed under the microscope as it were and examined carefully and on the whole with fairness by those best able to appreciate its advantages and disadvantages. It would be strange if opinion were not affected by certain unpleasant characteristics of the tour of Lorenz through this country, but it is not evident in any of the critical discussions that have arisen on this subject that opinion has been materially influenced by personalities. The visit of Lorenz was the stimulus which has brought out the statistical reports and supplied us with the definite knowledge on this subject which was so much needed.

From the orthopedic staff of the Boston Children's Hospital[9] has come a complete report of all the cases of congenital dislocation of the hip at that institution since it has been recognized that something could be done for these cases. This report covers a period from 1884 to the present time and is based on the observation of 144 cases. It includes ten cases manipulated by Lorenz, and shows the results of all known methods of treatment. It shows, too, how success has added to success and increased the field of usefulness of operation for this condition. Between the years 1884 and 1896, twenty-one cases were treated, seven by mechanical appliance without operation, twelve by open operation and curettage (Hoffa's early operations—two of them by Hoffa himself), and two by manipulation under an anesthetic. All twenty-one were failures. Between the years 1896 and 1902, fifty-four cases were operated upon; thirty-four of these were cut down upon with eleven successful, six unsuccessful and seventeen unknown results. Twenty were manipulated

with one success, seven failures and twelve unknown results. In the year 1902, twenty-two cases came to operation, an excess of one over the entire number treated in the twelve years before 1896. Of these twenty-two, two were operated upon by open incision and were both failures. The remaining twenty were manipulated, half of them by Lorenz himself. The results were eight successes, two failures, three relapses, and seven transpositions. In the year 1903, thirty-three cases were operated upon. On twenty-four of these a machine was used to aid stretching. The results were sixteen successful cases, five transpositions and three failures. Eight cases were manipulated with six successes, one transposition and one failure. One case was operated upon by the open method and was a failure.

Enough time has elapsed to make these results trustworthy, and most of the cases have been verified by skiagrams and the careful examination of unprejudiced observers.

The gratifying improvement in results here noted needs no further comment. Attention may be called to the fact, however, that there has been a steady gain on the side of manipulative methods as against the open operation. The broad view of this subject taken by the group of men making this report is apparent in this paragraph taken therefrom: "There is a certain analagy between the treatment of congenital dislocation of the hip and that of club foot. In the simple cases, manipulation under an anesthetic is sufficient. In the more resistent cases correction is helped by mechanical aids. In the oldest and most complicated cases, incision and osteotomy are often needed to perfect the cure."

Bradford, by long years of patient energy and devotion to this branch of orthopedics, has been able to give to us with the aid of his associates this valuable epitome. The mechanical stretching referred to in this report was accomplished by the "Bartlett machine," or the "Boston machine," an instrument devised by Mr. Ralph Bartlett, an attorney. This machine is a powerful traction windlass, so constructed that its outside bar presses directly on trochanter major. With it powerful traction is applied, the limb is pulled down, then the machine is abducted with the limb and the head lifted directly into the acetabulum. Bradford[10] attributes the success attained in many cases to this contrivance, and has published a description of it during the year.

Ridlon,[11] in an article on the ultimate results of the bloodless operation, has taken up the claim of Lorenz that 80 per cent. of the manipulated cases show good functional results and that over 50 per cent. of the cases show anatomic reposition, and states that the anatomic replacements are not in excess of 20 per cent, and that the claims of Lorenz have led to bitter disappointment and unjust condemnation of earnest and skilful operators. He also gives to Paci, of Pisa, the credit of originating the operation, and is apparently of the opinion that what Lorenz has added to the method of Paci is of little importance. His

statements on percentage of success are based on the observation of 159 dislocated hips, ninety-four of which had undergone the manipulative treatment. Of these ninety-four ten showed perfect anatomic replacements. Lorenz himself operated upon twenty-nine of these with the following results according to Ridlon's report: Seven failures, thirteen anterior transpositions, six supracotaloid displacements and the remaining three doubtful successes. He accounts for this difference in results with the claimed results of Lorenz as being due to the conditions under which Lorenz operated, and also to the fact that most of the cases did not receive the proper aftertreatment.

Lorenz[12] has written a paper which in part answers these criticisms, though he does not take up the discussion openly. He goes over the old ground, and states that he can see no way in which to improve his operation, that he does not approve of a machine to aid in stretching the contracted muscles, that too much importance should not be attached to the skiagrams of cases, for it is not uncommon for the skiagram to fail to coincide with functional results. He does not believe that the age limit can be raised, and closes his paper with the significant phrase, *nil perfectum sub sole.*

Mueller,[13] the assistant of Lorenz when he traveled over the country, has taken up the statements of Ridlon openly, and first says that no one should confuse the methods of Lorenz and Paci, inasmuch as they are different, *vide* the fact that Lorenz reduction is accomplished by "ultra-physiological abduction," the head thus entering the acetabulum over its posterior rim, whereas the Paci movement brings the head in over the inferior part of the rim. He claims that the statements of Ridlon regarding percentage of anatomic restorations were made prematurely, and further states that he was able to recognize three cases that were reported in the Ridlon statistics as anterior transposition as being cases in which he conducted the after treatment and obtained anatomic repositions.

Horvath[14] has reported fifty-seven cases. Fourteen of these were anatomic replacements, twenty-one were anterior transpositions with good functional results, fifteen are still under treatment, ten were failures to reduce, nine relapsed and eleven were lost track of.

This last year has been full of highly instructive reports and progressive work on this important branch of orthopedics and the results shown are very encouraging. It does not seem visionary, considering what has been done, to look forward with assurance to a day when the cases that are irreducible have closely approached the vanishing point.

Tuberculous Hip Disease.

The most noteworthy piece of work on this subject has come from France. Calot[15] (in a 230-page book) has taken up the subject thor-

oughly, going into all the refinements of diagnosis and treatment. Although there is nothing startlingly new or original in the book, there is much of interest; as, for instance, the chapter on the aspiration of hip abscesses and the chapter on osteotomy. The application of the plaster of Paris spica—the method of treatment preferred by the author—is described in the most painstaking way, and is full of valuable hints which might be applied to plaster of Paris treatment in general.

Freiburg[16] has recommended an appliance for bed traction, the virtues of which are that the limb is held steady, and that the weight acts in extension practically as well as in theory. The only possible objection to the apparatus would be its cost. Freiburg[17] has also called attention to Bier's "congestive method" in the treatment of joint tuberculosis, and has reported three cases where he employed the method with very satisfactory results. He recommends the method as an adjuvant to the resources long at our disposal. The technic of the treatment is to apply to the diseased joint a bandage which produces constriction and hyperemia. The congestion thus obtained should never be allowed to pass beyond the hot stage, and the patient should feel no pain whatever. The treatment should not be applied for more than an hour daily.

Pott's Disease.

Taylor[18] and Throndike,[19] writing independently, have called attention to the fact that statistical data on the question of the increase or improvement in deformity in Pott's disease is meagre. In the opinion of both of these observers more attention should be paid in dispensary practice to the recording of increase or diminution in the kyphos, and the jacket should be applied to the individual with due consideration of his own response to correction. The stimulation of interest along these lines will do much to improve the mediocre results that are now being obtained. Young[20] has described a very efficient apparatus for the treatment of upper dorsal and cervical Pott's disease. This consists of a cuirass made of felt or celluloid, which is constructed on a cast of the child's back; the mould for the cast is taken with the patient lying face down on a canvas hammock; the head, neck and trunk are included. The patient is secured in this by broad webbing bands. Wullstein,[21] in an elaborate article on the treatment of Pott's, recommends an appliance very similar to this. He corrects the deformity on a machine, however, and applies a plaster. Using this plaster as a mould he makes his celluloid appliance, but joints it so that a greater or less degree of correction may be secured by screws at the will of the surgeon.

Scoliosis and Round Shoulder.

Hoke[22] has operated for the deformity, and his work (which involved many careful experiments, the designing of many special instruments,

and a series of operations on the cadaver and on animals) ended in a practical improvement which could not have been obtained in any other way. His operation, in brief, was to divide the ribs on both sides, and remould the deformed thorax to as nearly the normal conformity as possible. The difficulties encountered, the patience displayed on the part of the patient, and the ingenuity of the operator, all go to make this a remarkable piece of work. The operation would only be suitable in cases where the osseous deformity was evidently of such a nature that exercises and jackets could accomplish nothing. Lovett[23] has written again on the element of torsion in scoliosis. His method for applying corrective jackets is in theory the best, and practically, also, as shown by his results.

Lovett[24], in an article on the forcible correction of round shoulders describes an apparatus which exerts an accurately applied lever force in such a manner that there is no escape therefrom, the only question being how much correction is safe. He states that some mechanical stretching is necessary in round shoulders, the hope being to restore the dorsal spine to a more normal range of hyperextension and then to educate the muscles to hold the improved position.

Paralysis.

Poliomyelitis has been approached by Spitzy[25] on the side of nerve grafting and an interesting field of speculation opened. He has given us the technic of his laboratory operations in neuroplasty and suggests that as nerve grafting is a method of operative treatment which does not interfere with the other methods of treatment practiced, it should be given a trial. That it may result in return of power, Cushing[26] has demonstrated in an anastomosis of the facial nerve for facial paralysis. Young[27] reports a case of paralysis of the anterior tribial muscle which was benefitted by an anastomosis of the musculo-cutaneous with the branches of the peroneal nerve which supply the anterior tibial muscle. He calls attention to the necessity, in an operation like this, for anatomic exactness and precision in recognizing the nerves.

Dane and Townsend[28] have published a series of fifty cases of paralysis of the lower leg (poliomyelitis) operated upon by several men, a sufficient number of years having elapsed since operation to justly judge the results. Tendon transplantation, arthrodesis and astragalectomy, were the operations done. The results would seem to show that tendon transplantation is not so satisfactory, except in carefully selected cases, as astragalectomy or arthrodesis.

Hoffa[29] writes that to get good results it is important to obtain the highest possible tension on the grafted tendon in an over-correction of the deformity, and to do this it is always better to correct the deformity before the operation. He recommends the following new operations. In spastic contracture of the forearm, in order to overcome pronation,

change the pronator radii teres into a supinator by transferring its origin from the internal condyle to the external condyle of the humerus. Transplant the trapezius to the position of a paralyzed deltoid in paralysis of the shoulder joint.

Gibney[30] reports the removal of the tensor vagina femoris in a case of spastic paralysis in order to correct internal rotation which could not be overcome by other procedures. The operation was at the time of report a success, but lapse of time will be necessary to judge its permanent effect. Clarke[31] reports a case where he cut out on each side about an inch of the adductor longus and gracilis, with parts of the adductor brevis and magnus; also parts of the hamstrings and tendo Achillis for the relief of contractures in spastic paralysis. He thus secured a considerable relaxation of the stronger muscle groups and the case was much improved. Tubby[32] has given a report of successful muscle grafting for paralysis. In the case reported the serratus magnus was paralyzed. He took a large part of the sternal portion of the pectoralis major, dividing the humeral attachment of this, the end was sutured with silk into the paralyzed serratus, with the result that power returned to the serratus. He has reported only one case, but the suggestion is a valuable one.

Foot Error.

A statement from such a man as Gibney[33] carries with it an irrefutable amount of weight, even if it be of a revolutionary character, regarding the treatment of congenital talipes equino varus. Gibney has written that in his opinion the treatment in these cases has been begun too early, that until the foot becomes a weight-bearing, walking apparatus, attempts at correction and cure are of little avail, the results obtained not justifying themselves when placed in comparison with the pain and disturbance consequent on the treatment in young children.

Blodgett[34] has done one of the best pieces of work that has been attempted during the year. Up to the time of the appearance of this paper there were no reliable statistics on the subject of static foot error. He has gone over the treatment and the results of one thousand cases of flat foot, and put his conclusions into such form as to be easily available. His work covers three years and is decidedly praiseworthy. Some of the interesting points brought to light are (1) that 40.8 per cent. of orthopedic cases have static flat foot; (2) that two-thirds of the cases were under forty years of age; (3) occupation is shown to play an important part in the etiology; (4) cases are most frequent in the summer; (5) pain is most commonly localized at or near the astragaloscaphoid articulation. As to the results of treatment, plate treatment was the most efficient. 32.7 per cent. were entirely relieved, 44.9 per cent. were relieved, 7.8 per cent. were slightly relieved, 13.6 per cent. were not relieved, .1 per cent. was made worse. The fact that it is nec-

essary to frequently change the form of support—no matter whether it be plate or plate substitute—is clearly demonstrated.

Bradford[35] has written on the relation of boots to humped foot or metatarso-tarsal valgus, and has shown that constricting shoes are responsible for this condition. The human weakness that prompts the buyer to purchase small and injurious shoes is responsible for this deformity and the remedy is readily prescribed, but not easily applied.

Coxa Vera and Fracture of the Femoral Neck.

Whitman[36] has called attention to the distinction between fracture of the neck of the femur and epiphyseal disjunction in early life. He divides the cases into three classes: (1) Simple, direct fracture of the neck, usually incomplete, occasionally complete. This class should be treated by putting the limb up in a plaster of paris spica at the limit of normal abduction. (2) Direct epiphyseal disjunction, usually incomplete, in rare instances complete. These cases should be operated upon and the head replaced. Removal of the epiphysis should only be done in case of necessity. (3) An indefinite class, in which the deformity is at or in close proximity to the epiphyseal junction. These patients are of a class that have the so-called static deformities of adolescence, and injury here is probably an aggravating rather than a direct cause of the distortion. Under this head coxa vera is included. Excision of a wedge at the base of the trochanter is the operation here to be employed.

Hoffa[37] states that epiphyseal separation is often mistaken for hip disease. He is inclined to place all cases of coxa vera under the head of epiphyseal disjunctions.

Moore[38] has written of his method for obtaining a bony union in fractures of the femoral neck in aged persons. He reports several very successful cases, and states that the reason why this class of patients is regarded as being beyond surgical aid is due to the fact that the proper kind of treatment has never been applied except in exceptional instances. There is nothing in the old person that is against bony union if the fragmentr are placed in apposition. In order to obtain apposition of fragment ends he anesthetizes the patient, flexes the thigh to lift the tendon of the psoas away from the seat of fracture and makes traction while bringing the leg down into a normal position. Fifteen to twenty pounds traction is then applied by weight and pulley. Ten to fifteen pounds pull is also applied to the upper and inner side of the thigh by weight and pulley. This side pull is the special feature that produces the good results, its action being to lift the upper end of the long fragment upward and outward, and by making the capsular ligament taut brings the short fragment into position. The fact that union has followed this treatment in a number of cases is of no small significance.

Painter[39] reports three cases of intracapsular fracture of the femoral

neck. In one case the fragments were wired together with silver wire; in a second the bone ends were trimmed off and the leg put up in 25° abduction. The fragments were apposed in the third and a ten-penny wire nail driven through to secure them. Good functional results followed all these operations.

Harting[40] defines coxa vera as a static deformity due to burdening the upper end of a femur weakened by rickets, trauma, tuberculosis or osteomalacia.

Froelich[41] divides the cases into symptomatic and an essential coxa vera. In the symptomatic class there is hypertrophy of the neck, and the angle is very near the trochanter major. In the essential class the neck is not hypertrophied, and the angle is near the head. Reiner[42] is of the opinion that coxa vera is an antecedent step in the deforming process which has for its end results the congenitally defective femur. Codivilla[43] recommends osteotomy at the neck, the seat of the deformity. He does not believe in the loss of any bone or that the operation should involve the coxo-femoral joint.

The visit of Professor Hoffa, of Berlin, to this country in the early summer of 1904, was an event of great interest and satisfaction. The character of the man is such that entertainments given in his honor were a long to be remembered pleasure to those who were fortunate enough to be present. He attended the meeting of the American Orthopedic Association at Atlantic City, and contributed much to the interest of that meeting. He operated and lectured in most of our large cities, and gave a lecture in the German educational exhibit at the Louisiana Purchase Exposition. He was accompanied by Dr. Hanz Spitzy, of Graz, Austria. In passing, a word of comment is not out of place on the fact that this visit was not marred by an unpleasant newspaper notoriety.

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NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M D.

The review of the literature on the subjects of Neurology and Pyschiatry will, in the main, follow the general scheme of division adapted in the review of last year. In addition, an attempt will be made to indicate the lines of thought that the discussions in the various special societies seem to follow in order that the more vital questions which are disturbing neurological thought in different parts of the world may be indicated. The review this year will be divided into the following divisions: (1) The reports of cases, or collection of cases and statistical studies, in which clinical questions of various kinds are treated. (2) Studies relating to the anatomy, physiology and pathology of the central vervous system, including especially the newer work on the neuron and its place in the mechanics of diseases and in the normal action of the nervous system. (3) Studies relating to the newer methods of therapy and of clinical and laboratory diagnosis. (4) A consideration of the most notable text-books and monographs which have appeared during the year.

There has been a pronounced absence in the past year of papers dealing with large collections of cases and statistical studies which depend for their effect upon the weight of numbers. There has been, on the other hand, a marked tendency towards the discussion of the place which certain variations in clinical types should occupy in our classification of nervous diseases. This is to be regarded as a helpful thing, as it points to a more careful consideration of symptoms and a broader conception of the types which disease may take. The inclination to this end may be illustrated by noting the renewed interest in the conception of neurasthenia and its real meaning and by the widespread attention with which the discussion of dementia praecox has been received throughout the neurological world. This subject alone took up a large share of the time of the English, German, French and American special societies.

A paper well illustrating the tendency referred to is that by Reynolds,[1] who calls attention to the aberrant types of multiple sclerosis. Such cases are often difficult to diagnose and more difficult to interpret. The occurrence of these unclassical types in families is an important fact, as it points to the idea that is more or less an increasing one, that the disease, multiple sclerosis is to be thought of as purely degenerative in character and not dependent upon trauma, infection or intoxication. If this is so, and it is just this, that the paper seems to prove, then we will be able in the future to regard cases, as multiple sclerosis which present disconnected symptoms depending upon a most unsystematic

anatomical distribution of lesions. It can be seen that one of the first results of the deeper conception of this disease will show itself in the depletion of the ranks of the so-called functional diseases by such cases that present symptoms enough to suggest the possibility of multiple sclerosis. Schiefferdecker and Schultze[2] have made a notable contribution to a group of cases which have been little understood up to this time. The disease of the muscle substance itself, as seen in cases of myotonia, congenita, tetanie, paralysis agitans, etc., have until now had mostly a clinical interest, because the outlook from the study of the nervous system, microscopically, seemed altogether hopeless. This monograph is a good example of the better sort of work that is being done today in neurology. The purpose of the work is to investigate the finer anatomy of the muscle substance by special method by means of which the nucleus of the muscle cells can be clearly differentiated. The clinical histories of the cases are carefully given, and the muscles are sometimes studied from specimens cut from the living and sometimes from post mortems. There is included also a long series of experimental studies on animals for the purpose of throwing light on the anatomy of the normal muscle as shown by the improved technique devised by the authors. The conclusions which the authors are enabled to draw from this extensive piece of investigation are of the greatest interest. Only a few of them can be given here. For example, myotonia congenita appears to be based upon a peculair diseased condition of the sarcoplasm as a result of which the fibrillæ become affected. The hypertrophy of the muscle fibres and the increase in their nuclei appear to be secondary processes. There is a distinction between simple atrophy and atrophic degeneration, the fat disappears from the fibres before the latter process takes place.

In paralysis agitans not only the muscle fibres and the fibrillae, but also the spindles are diseased, while the nerve endings themselves in the spindles and in the muscles are apparently normal. In this disease a special relation of the pigment to the nucleus is found. These are only a few of the interesting findings in this remarkable piece of research. Of striking interest and importance is the relation of the histological changes in the muscle with the symptoms of the disease. The increasing importance of regarding nerve and muscle as intimately related is here shown, and a way is opened by this paper to a more definite understanding of abnormal conditions in which muscular symptoms are most in evidence. The point to be remembered is that the time is rapidly approaching when such a disease as paralysis agitans will not be thought of as a disease dependent upon senile changes in the spinal cord, but will be brought in relation with its chief group of symptoms, those referring to the muscular system. This is part of a tendency long ago brought out by Virchow in the dictum, "*Ubi est morbus.*" The most interesting contribution to the subject of tabes dorsalis, so much in

evidence in the review of last year, is less a matter of novelty in the sense that it is an addition to the knowledge than it is the last word on the aetiology by one of the foremost authorities on the syphilitic tabes question. Erb[3] sets forth in his paper strong evidence in favor of his assumption that the most important cause of tabes is syphilis. The facts presented are so convincing that it would seem that the battle fought over this question for more than twenty years ought to be ended. The paper is an extensive one, going through four numbers of the JOURNAL. The additional material collected since his last publication on this question, that is since 1896, consists of four hundred cases belonging to the more educated classes. Of these, 88 per cent. gave positive evidence of a previous syphilitic infection, of the remainder only 3 per cent. gave absolutely no history of a previous specific infection. This small percentage may well fall within the limits of error which even a material wholly syphilitic might be expected to give. Erb goes with great detail into the objections advanced against his theory and exposes their weakness most convincingly; especially is this so in regard to the objection so often advanced by the opponents of the syphilitic theory, that is, the non-existence of tabes in syhilitically infected districts or where syphilis has become endemic. Bosnia, Herzogovina, Abyssinia, etc., were supposed to have no tabes, although the people there were syphilitic to a marked degree. Erb shows that in the latter country there are four times as many tabetics in a hundred nervous cases as are found in Vienna. He further proves that the statistics concerning the occurrence of tabes in these countries have been very inaccurate until the most recent times. He concludes with this dictum, which from his standpoint may be considered final: Tabes is without doubt, in by far the greatest number of cases, a syphilitic disease, but it is not yet definitely determined, but altogether probable, that it is the aetiological factor in all cases. Of scarcely less importance than this paper is one by the dermatologist Lesser[4], on the same subject, from the standpoint of a dermatologist. The method followed in this paper is an admirable example of a fair and logical inquiry. Lesser points out that two questions are of paramount importance in a solution of the problem. First to determine what per cent. of tabetic *post mortems* show anatomical evidences of syphilis. Second to find out what per cent. of all syphilitics dying above the age of thirty-five years show anatomical evidences of syphilis.

In ninety-six cases of tabes, 28 per cent. showed unmistakable evidence of syphilis in the post mortem examination, while in only 9.5 per cent. of the cases of syphilitics over thirty-five years of age showed definite specific lesions in the post mortem examination. This simply means, and there seems no refuge from this conclusion, that syphilis and tabes are ætiologically so closely related that the fact cannot be controverted any longer. The question now lies more in the direction of the mode of ac-

tion of the syphilis than in the argument concerning the fact itself. In addition to statistical truths of this kind Lesser throws a good deal of light upon some new aspects of the pathology of syphilis. What he calls the interstitial inflammatory stage of syphilis, or the quartan syphilis, as illustrated by such post mortem findings as fibrous orchitis, syphilitically lobed liver, etc., show so many of the same characteristics as do the pathological changes found in the cord of tabetics that it is well nigh impossible to avoid the conclusion that the two processes are of the same or similar character. Lesser then takes up one by one all the objections that have been advanced against the syphilitic origin of tabes, and shows how weak they really are upon close analysis. He concludes his paper in this way: As soon as the fact can be admitted that tabes is a direct syphilitic disease, caused by the syphilitic virus in the same way that fibrous orchitis, syphilitically lobed liver, aneurism and smooth atrophy of the tongue, then there will be much less room for the endless discussion which has been so prevalent for the past ten years. The discussion of this paper before the Berliner Medizinische Gesellschaft was shared by Mendel, Benda, Hansemann, Rothmann and others. There was in general an approval of the position taken by Lesser on this subject, as well as an approval of the results of Erb's long study. The importance of both of these papers lies, on the one hand, in the careful use of a large statistical material by Erb and on the other in the impulse that Lesser gives towards bringing the tabetic process in line with syphilitic alterations in other organs in the body, thus doing away in a measure, with the mystery which has always surrounded all discussion of the pathological changes in the tabetic cord. The question of infantile tabes noted in the review of last year receives additional confirmation by several contributions that have appeared in the past year. The importance of this subject consists first in the establishment of the fact of the occurrence of this disease in the young and second in determining the relation which it bears to hereditary lues. In this way it belongs to the syphilitic tabes question. Williamson[5] describes three cases in two of which there were undoubtedly signs of hereditary syphilis and in the third such a condition was highly probable. Nonne[6] reports the striking and unusual occurrence of a tabes occurring in a mother and two daughters, the former upon a syphilitic basis, the two latter having hereditary syphilis. This last contribution appears to point to a final settlement of the question, especially so as Nonne's reputation for careful clinical observation on just this class of cases is too well recognized to admit of a doubt as to its correctness. Gordon[7] and Hegelstamm[8] recount cases belonging to this group, the case of the former being highly complex, in that symptoms pointing to an early poliomyelitis were present. The heredosyphilitic factor was undoubtedly present. Hegelstamm's paper deals also with dementia paralytica, the close association of which with tabes has now become an undisputed fact. The subject of myasthenia gravis,

one of the most interesting of all the newer clinical types of what for the present must be called functional diseases, has been enriched by a careful investigation of Hun, Bloomer and Streeter[9]. Their case was typical in every way and at the autopsy the nervous system was found to be negative, but there was a marked infiltration of the thymus gland and muscles with lymphoid tissue. The changes in the gland suggested lymphosarcoma. This finding is of some significance as it confirms to a certain extent some of the earlier work on the subject notably that of Goldflam and of Burr and McCarthy, which were mentioned in a former review. There is in the paper referred to above, a very good bibliography and a resume of the pathological findings of the reported cases up to this time, which adds to the value of the paper. Oppenheim[10], whose every word on the subject of myasthenia deserves attention, reports a case and draws especial attention to the importance of the eye muscle symptoms as one of the earliest diagnostic phenomonon of the disease. Long before the other symptoms are apparent they can be observed. In the case he describes there was a polydactylia and he notes the frequency with which congenital abnormalities are met with in his series of cases. Harris[11] shows that permanent palsy may sometimes follow a diphtheritic paralysis. When such a paralysis remains it is usually of the muscles supplied by one or more of the bulbar nuclei.

That a distinct type of bulbar paralysis may ensue, closely resembling in its distribution that which is familiar in myasthenia, is proven by this paper. It is to be distinguished from the latter by the non-variability of the symptoms, the absence of the myasthenic reaction, the absence of ptosis or of weakness of the jaw muscles or of the neck and extremities. It is also to be distinguished by the absence of attacks of dyspnoea, so characteristic of many cases of myasthenia, and by the presence of muscular weakness and reaction of degeneration. Always of interest is the possible relation of myasthenia to other diseases or its combination with them in the same individual. This always suggests the possibility of a common or, at least, a similar origin. Meyerstein[12] describes a case in which the usual myasthenic symptoms were combined with those of Basedow's disease. There is a marked tendency to see in myasthenia a disease that is due to some process in the body which can account for the extreme fatigue symptom. In this way it has been brought in relation with pregnancy and other conditions in which the assumption of a certain degree of toxæmia is present, and this latter finding of a complication with Basedow's disease may be of some interest. There are at least two papers on epilepsy that are of especial note, and deserve mention here, not because they have added anything new to our knowledge, but because they present the subject in a new light. They both enable us to think about epilepsy in a way that promises to bring results in the future. Starr[13] discusses the problem of the functional character, and Clark and Prout[14] attempt to prove by a study of

the anatomical changes found in cases dying in status epilepticus that the disease is truly one in which there is a definite pathological condition sufficient in degree to account for the symptoms. Starr bases his opinion upon a careful study of two thousand cases. This material is so large that any conclusion derived from it, for that reason alone, deserves attention. His argument is based upon the following: First, Jacksonian epilepsy is always due to some disease of the cortex; a sharp line between this and the so-called idiopathic epilepsy cannot be drawn. Second, in four hundred cases of maldevelopment of the brain 39 per cent. were subjects of epilepsy. Third, in the study of the cause of epilepsy such factors as alcoholism, heredity, tuberculosis and trauma are found. Now all of these produce, or can produce, definite changes in the brain. Fourth, although there has been as yet no agreement among pathologists as to the exact interpretation of the changes found in epileptic brains, yet all these alterations of tissue are significant of the fact that organic processes do exist, and that they are found in a fair proportion of brains that are examined.

From these facts Starr is of the opinion that the disease is a disorder of control overinherent energy. Its existence is proof of a weak and defective organization of the brain, and any lesion, no matter of what kind and no matter in what place, is capable of interfering with these mechanisms of control and of giving rise to the symptoms. Clark and Prout studied the brain of epileptics dying in status epilepticus, because this represents an essentially epileptic characteristic, and found a great number of interesting changes in the cortical cells, especially of the sensory layer. They interpret their findings in this way: First, epilepsy is essentially a sensory phenomenon, as the cells of the second and third layer are especially involved. Second, the essential lesion of epilepsy pertains to the nucleus of certain of the cortical cells, and is of such a nature as to seriously jeopardize the cell for considerable periods and ultimately cause its destruction. Third, chromatolysis is a nutritional change brought about by the nuclear toxemia. Fourth, the rôle of the leucocytes in the cortex after severe epileptic explosions is, most probably, that of a phagocyte. Fifth, the neuroglia overgrowth in epilepsy is one of the more remote sequences, and probably occurs in response to toxic irritation. The most suggestive paper on neurasthenia and the only paper on this subject of importance that has appeared during the year is by Dana[15] on the partial passing of neurasthenia. In this paper Dana calls attention to the fact that in so far as neurasthenia is regarded as a psychosis, just so essential is it to consider it not as a definite diseased condition, but as being comprised of various psychical states of an elementary type. If these are followed out and carefully analyzed, it will be found that what remains of neurasthenia is a comparatively small number of cases of true fatigue neuroses. For the rest there is found to be the beginnings of paranoia, dementia præcox, and

various other psychical disturbances which may never pass beyond the stage of comparatively slight alterations in the mental make-up of individuals. These individuals generally show evidences in their past lives of a sufficient degree of neuropathic tendency to have marked them out as candidates for the development of a psychosis of one kind or another. It is to be hoped that the influence of this paper will be widespread. A conception so deep-rooted as this is should have one result at least, and that is to strengthen the tendency to differentiate sharply the various conditions which before were grouped in a most confusing way under this one head. The question of primary spastic spinal paralysis has been a matter of debate ever since Struempell, on purely theoretical grounds, believed that such a condition must of necessity exist. That his assumption was justified has been pretty well agreed upon, but what relation this condition bears to other certain well-known diseases of the spinal cord is by no means understood; therefore a paper by Struempell, who must be looked upon as a special authority on this subject, deserves always close attention. Struempell's[16] paper this year is, in part, an answer to Leyden and Goldscheider, who, in the last edition of their text-book on diseases of the spinal cord in the Nothnagel series, deny that the disease, as a clinical and pathological entity, exists. This they maintain in spite of the paper of Erb's published last year and mentioned in the year's review. Struempell's paper contains an account of several cases of this disease with the post mortem findings in some of them. The main conclusion is, that there is such a disease as a primary spastic degeneration of the lateral pyramidal tracts, and that the condition deserves a place in our classification. He further finds that there are four varieties of the disease. The recognition of the varieties found may be regarded as the chief advance of Erb's paper over that of the preceding year. There is an endogenous variety of familiar and heredity origin, an infantile form, one which makes its appearance in middle age and an exogenous form, probably syphilitic in origin. This last is seldom a pure form of the disease.

On the subject of cerebral tumors, always a prolific source of neurological investigation, there is little to chronicle that would make for an advance in our knowledge. There is found, of course, the usual number of papers describing a single case, generally an operated one, with the localization more or less accurate. The subsequent history of these cases is seldom included in the article, and we are deprived of the chief interest which they now have for us, and that is, the reaction of the nervous organism to the tumor process and the effort made to relieve it. It must be remembered that at present cerebral localization in the majority of cases is by no means the difficult problem that it was, and especially has it become easier since the surgeon has consented to do the large flap operations. Mention should be made of the papers on cerebellar localization and on the cortical function in regard to the subdivisions of the

aphasias by Mills[17]. His conclusions are always of unusual interest, because they are based upon clinical observation of a material that is very large and very carefully studied. The attempt is being made, and with a constantly growing proportion of successes to localize in cerebellar growths, not only their absolute location there, but the portion of the cerebellum growth it occupies as well. Of more than passing interest is the emphasis Mills places on the symptom of muscular weakness in tumors involving the cerebellum. This is believed to be a part of the localizing data at our command. Fraenkel and Hunt[18] have brought out with great clearness the existence of a variety of tumors of the brain which have not been adequately recognized, or at any rate have not been clearly understood until their paper appeared. These are the so-called acoustic neoromata involving the acoustic and facial nerves. These tumors are generally peripheral in origin, generally multiple, and are neurofibromatoses. The value of a knowledge of these tumors lies in the fact that they are, for the most part, located in the cerebellar pontine angle, and are, therefore, well within reach of surgical interferance. Though such tumors seem to be favorably located for removal, yet the percentage of recoveries remains very low. This may be due to the fact that they were not recognized in time, or to the fact that we must be prepared to see a high percentage of mortality in all brain tumor operations for some time to come. J. Lepine[19] reports two cases of tumors involving the acousticus; it is likely that these also were of the same variety as far as the localization is concerned. This paper of Fraenkel and Hunt should have as one result the overhanling of all of the operative literature on cerebellar tumors, as, without doubt, a certain proportion of them which are reported as being successful, were tumors of this kind.

The three following papers are selected because they throw additional light on some of the problems of tumors involving the central nervous system, though they do not bring out any absolutely new points. Nonne[20] contributes a very remarkable paper on a class of cases which have always eluded efforts to explain them. These cases occur frequently in practice and are lost sight of and put in the category of almost miraculous happenings. He refers to that class of cases which show every symptom of cerebral tumors including optic neuritis, and which after a year or less show a remarkable tendency to get completely well even to the clearing up of the optic neuritis. To this class belong, also, the cases in which after a careful localization operation is done and no tumor is found. After the operation the patient gets completely well and the cure is said to depend upon the relief of pressure, etc. The case histories in this paper are of extreme interest and the negative post mortem findings in some of them add to the perplexity of the problem. Nonne does not favor the assumption that the symptoms are due to an acute hydrocephalus idiopathic in nature. He offers no theory of his own in explanation. It is certainly a valuable thing to know about

these occurrences, and the whole question calls for earnest investigation. The role of trauma in the causation of cerebral tumors has always had a certain interest, especially to those who believe that trauma plays an important part in the etiology of many organic nervous diseases. Liefman[21] contributes a case which helps to solve the question of the possibility of such a relationship. He shows in his case the direct anatomical connection between the trauma and the subsequently developing tumor. The trauma was on the skull and directly underneath it the tumor was found. This kind of evidence is much needed in this connection as well in all those conditions in which trauma is regarded as an important factor. To establish a direct anatomical connection between the two is worth more than any amount of theoretical proof. Cushing[22], whose work on the surgery of the nervous system is becoming more and more of value to the neurologist, describes a case of successful removal of an intradural tumor of the cervical region. Aside from the very accurate localization, the chief point of interest in this paper is the emphasis that is given to the necessity of operating on this class of cases as soon as the diagnosis and localization can be made. Time must not be wasted in antisyphilitic procedures because no return of function can be expected if the pressure symptoms of the tumor have gone far enough to produce atrophy. The lesson to the neurologist is obvious and the delay of some weeks in the preliminary antiluetic treatment is often the difference between success and failure in favorable cases. As a contribution to the more exact localization of cerebral growths Phaler's[23] paper on the use of x-rays is important.

Thirty cases are described in which the x-ray was used and the conclusion is that most large lesions can be shown by it, but that no operation should be done on the evidence furnished by this means alone. It is to be noted that there has been a steady advance in the technique and the method of making use of the x-ray in this class of cases. On the subject of hysteria the number of papers that have appeared during the year has been very large. Most of them deal with unusual clinical manifestations of the disease without any attempt to explain their origin. Such papers are interesting enough, but they cannot be said to represent any especial advance in our knowledge. In the review of last year, mention was made of a new symptom complex called the Ganser symptom. The reason that this is so important is that though it is mostly confined to hysteria, yet it is found also in other psychoses. The relation which hysteria as a psychical disease bears to other better understood mental conditions might through this common symptom be more definitely determined. There are a number of good papers to be found and at least one considerable monograph. Hey[24] in his monograph brings the knowledge we have on the subject up-to-date. The symptom consists in the ridiculous answers given by patients to questions which they obviously understand and which they are able to answer correctly.

The interesting point is that never under any circumstances is the correct answer given. This, together with a peculiar condition of stupor (dammerzustande), makes up the symptom. It is found most often in hysteria and in dementia paralytica and also in epilepsy. It is not pathognomic of either of the first two conditions. Hey brings out for the first time in an explicit way the forensic importance of the symptom. The question of the differentiation between this and malingering is of importance for the reason that it is just this group of phenomona which is most commonly used in the feigning of insanity. Soukhanoff[25] calls attention to the medico-legal importance of recognizing the symptom and gives in addition a tentative explanation of its origin. Westphal[26] describes a case where the symptom followed or complicated a traumatic hysteria. Ganser[27] has a casuistical paper on the subject. Although the condition has now been observed very often and the literature has grown to considerable proportion, yet an adequate explanation of its significance has as yet not appeared. It is rather a strange thing that no American writer has contributed to the subject. A most creditable article on fecal vomiting and reversed peristalsis in functional diseases we owe to Weber[28] who has without doubt written one of the most valuable clinical articles of the year on hysteria. The case which the author mentions is of the greatest interest because a number of laparotomies had been done under the assumption that she was suffering from organic obstruction. In each case the abdomen was found to be normal. Some of the conclusions advanced by the author are worth remembering. They are as follows: That functional nervous vomiting is as much a symptom of functional brain disease as vomiting in cases of cerebral tumor is of organic disease, that fecal vomiting is only an exaggeration of the ordinary hysterical vomiting, that the vomiting in functional diseases may become more violent and more severe than it ever is in organic disease since fecal vomiting is scarcely known to occur in cerebral tumor and that active peristalsis is necessary before fecal vomiting can occur. In organic obstructive disease of the intestine the vomit is never fecal but feculent. S. Weir Mitchell and Spiller[29] report a case of hysteria in the male which lasted thirty years. The post mortem examination which included a careful study of the central nervous system showed nothing abnormal. This case is unique from the pathological point of view. The negative finding ought to settle for the present at least the absolutely unanotomical nature of the hysterical process.

To indicate in this review the progress of psychiatry or even mention the important papers, would extend its limits too far, so nothing more will be attempted than to note the important place which the subject of dementia parecox has come to fill in the neurological world. It is of interest to know that this subject formed the chief topic of discussion at the meetings of all the principal foreign societies, and at the meeting of the American Neurological Society the same emphasis was given to it.

The question at issue is, first, the justification of the term as descriptive of a clinical entity, and, second, the role of dementia in the psychoses of youth. The consensus of opinion seems to be that the term is by far too inclusive. This point of view is well shown by Meus,[30] who believes that the term itself is a poor one, and that the katatonic form of Kraepelin is only a variety of the same condition, which may manifest itself under the hebephrenic form as well. He suggests the term hebei phrenic-catatonic-dementia. In other words, he does not wish to include the psychoses of youth as wholly within the degenerative class. On the other hand, Massalon[31] believes that, inasmuch as the term has become recognized in its clinical aspect, and that investigators in other countries than Germany have found their material conforming to the type that Kraepelin describes, its value is too great to surrender. Stransky,[32] in a very elaborate and careful treatment of the subject, in the preparation of which he made use of the large Vienna material, finds that the term has a very useful place, and should be preserved. Serbsky[33] concludes that instead of advancing our knowledge of the insanities of youth, the use of this term as Kraepelin devised it only serves to narrow it. He regards it as an artificial group, in no way unified, and comprising the most heterogeneous processes. Weygant[34] touches upon the question of the occurrence in older subjects. From these citations it can be seen that the subject of dementia praecox is still an unsettled one, and the term psychoses of adolescence seems to be more preferable than the rather limited term proposed by Kraepelin. The point brought out by Sachs in the discussion before the American Neurological Society is worthy of notice, to the effect that the term dementia carries with it in the dismal prognosis which it implies too hopeless a condition, when it is known that a certain proportion tends to recover, or, at any rate, to show no progressive loss of intelligence. This view was supported by cases observed by him over periods of ten years or more. A fitting ending to this part of the review might be made by reference to a stimulating paper by Edinger.[35] In this he elaborates a former theory of his on the importance of fatigue or overwork in the causation of many types of nervous disease of an organic nature. The simplest form of an employment neuritis up to tabes paralysis, optic atrophy, muscle atrophy and combined sclerosis, including most of the congenital types, form only one pathological group, with intermediate varieties, the relationship of which can be definitely shown. The toxin theory of the causation of nervous diseases is objected to on the ground that it is impossible to imagine that the toxine should show such a selective action as would be necessary to produce the variety of pathological findings. Under certain conditions work alone can lead to the destruction of nerve tracts. An idea such as this ought to be of help in opposing the tendency to use the theory of toxin as an easy explanation for the puzzling results of disturbed morbid actions resulting in diseased processes.

Putnam,[36] in his masterly address before the Congress of Arts and Sciences at the St. Louis Exposition on the value of the physiological principle in the study of neurology, among other things, places great importance upon the idea that disease is a physiological as well as a pathological process, and that as much weight should be given to the study of disturbed function as to disturbed anatomical relations, and that it is the new duty of neurology to investigate these phenomena. With these two papers in our mind the way to a deeper appreciation of the problems of nervous diseases lies open for us.

As we noted last year, the most discussed problem in the anatomy of the nervous system concerned itself with the neuron, especially as a result of the work of Bethe and of Nissl. This year the question, much in its original form, has received new impetus, due to the discovery by Cajal[37] of a new technique in the impregnation of nerve fibres, by which not only the terminal filaments can be shown, but also the neurofibrilla and the endocellular network around the cell. As might be expected, the announcement of a new and a comparatively simple stain aroused in the minds of the foremost investigators in the problems of neuro anatomy the desire to reconsider the data upon which the truth of the neuron had been supported or weakened in the light of the new method. Consequently, there has appeared a large number of papers, bearing the foremost names in neurology, on this subject. Only a few can be noticed here. Marinesco[38] finds in the results obtained by the new stain not only a proof of the truth of the neuron idea as originally conceived, but in addition a satisfactory explanation of the autogenetic regeneration of nerves as well. As is well known, this latter has always been one of the chief points which the opponents of the neuron theory relied upon for weakening the theory of the neuron. Not only has Marinesco made use of the stain in his study of the normal anatomy, but used it also in pathological studies and experimental work. The condition of the neuro-fibrilla gives, according to him, valuable data. This is pioneer work, and its value cannot at present be estimated. The scope of his work can be seen from the following: Lesions of the neurofibrillæ following ligature of the abdominal aorta; lesions of the neurofibrillæ caused by tetanus toxine, etc. Lehnossek,[39] in a very carefully written paper, describes the method and gives his interpretation of the anatomical picture obtained. He finds that it supports, rather than weakens, the neuron theory and the contact hypothesis of nerve connection. Durante[40] shows in his article the main weaknesses of the neuron concept, and believes that the theory was formulated at a time when histology was in a rudimentary stage. For that time it was a useful enough hypothesis, and served to explain some complex points in the topography of the central nervous system. The unicellular conception of the nervous system which is implied in the neuron concept, must give way to the newer facts which progress in histology has brought

about. A polycellular conception conforms more nearly to the ideas at present in vogue. Bethe,[41] whose work has been so great a factor in the development of the whole question, presents some of his views in a critical discussion. He suggests that the term *neuron* be retained merely as a teaching scheme for the ganglion cell, dendrite, axis cylinder, and nothing more, and that this term should not mean the structural characteristics of the whole nervous system. Van Gehuchten,[42] in a casuistical article with a review of the literature, including Waldyer's original paper, concludes that the neuron as a cellular conception falls before the investigation of Bethe, and likewise is rendered untenable by the fact of the auto-regeneration of peripheral nerves. The point he emphasizes is that the neuron concept as a cell theory must be kept apart from the neuron doctrine as an embryological and physiological fact. Koelliker[43] makes a forcible plea for the neuron concept with these main propositions: First, nerve fibres spring from nerve cells of the central organ, which spread out in protoplasmic branching and end without connection with other cells. Second, by Cajal's latest method the axis cylinder ends with free branches about other nerve cells. Third, the neuron theory is correct. It is difficult to find out just what the new stain has done to strengthen or weaken our old conceptions. That it has stimulated anew research on one of the most interesting phases of the anatomy of the nervous system, can be seen from the papers just quoted and the authors who wrote them.

It is a point of great interest to observe how a new method that is really an advance in technique, and not merely a personal short cut of some laboratory worker, will always stimulate new and better work. The most noteworthy contribution of the year in the department of pathology deals with a problem that needs for its solution experimental evidence. It is by experiment on animals that the advances in neuropathology in the future must be looked for. Borst[44] deals with the question whether the specific nervous substance in the central nervous system following trauma, is capable of regeneration in an anatomical sense. This has been a mooted question for a long time, and the weight of evidence has seemed always to have been in the negative. A definite solution of this problem would be an event of great importance. Borst's work seems to go a long way to this end. By a series of the most painstaking experiments he finds that the neuroglia plays a very important part in the regenerative phenomona of the brain, and by means of its regenerative ability the continuity of the interrupted paths can be retained, that nerve cells do not arise by mitotic processes, and he concludes in the most positive manner that nerve fibres in the brain can, and do, regenerate. This is the important result of his work, and merits attention. Kennedy[45] adds further evidence to the fact that in a divided nerve the peripheral end shows regenerative power to produce new nerve fibres. The fact that there was a persistence of the axis cylinders in the focii of

multiple sclerotic patches, which has become one of the few positive conclusions in this disease, has again been the subject of discussion. Bielschowsky, Hoffmann and Bartels[46] came independently to the same conclusion, namely, that the axis cylinders found were not regenerated, but were the original ones. In the last review attention was called to some of the work that was being done at the London county asylums under the direction of Mott. The advanced character of this work was referred to. This year there is a paper by Tredgold[47] which is a good example of the kind of problems that are being investigated there. Three cases of multiple sclerosis were studied microscopically by him with the following conclusions: First, the initial change is in the myelin substance. Second, the axis cylinder persists for a time and finally disappears. Third, as a result, proliferation of neuroglia. Fourth, secondary degeneration takes place. Pathological conditions are suggestive of the presence of a circulating toxin. The apparent discrepancy in these findings and the ones just referred to, leave the whole question of the pathological findings in the disease undecided. There seems, however, to be more evidence in favor of the view which holds that the axis cylinders persist and that secondary degeneration is rare. Cognetto[48] found in two cases of hypophysis tumor only one showing the akromegalic group of symptoms. His idea is that the disease occurs through a primary metabolic process which stimulates the bones, the extremities, and especially the hypophysis to an active new growth formation. This is an altogether novel theory of the disease. Some years ago there was considerable attention given to some work of Nissl going to prove that certain poisons acted in a specific manner on the nerve cells, producing changes that were so typical that the kind of poison or toxin used could be told from the appearance of the nerve cell. Mourre[49] has offered experimental proof that Nissl's contention has no basis of fact. This is in line of some of the more recent work which tends to weaken the theory that the toxines of disease exert a specific and recognizable action on nerve cells. It is a pleasure to note that the optic nerve so important clinically in nervous conditions has aroused the attention of the pathologist. There are two papers worthy of attention in this respect. Fleming[50] studied the optic nerve in a case of optic neuritis, due to cerebral tumor, especially with reference to the neuroglia changes present. He finds that the changes found in cases of tumor are far greater than in optic neuritis, due to other causes, and he further believes that the optic neuritis, and with it the neuroglia changes, are not due to the abnormal pressure but to a toxic change in the optic nerve, and that the cerebro-spinal fluid is the agent which converys the agent. Leri[51] studied the optic nerve in a case of tabetic amaurosis, and finds that it is caused by an interstitial neuritis, a syphilic cirrhosis of vascular origin and a syphilitic meningitis. The study of the posterior root ganglion in tabes, has always held out hope for the solution of the ini-

tial lesion of this disease. Hauser and Thomas[52] again attack the problem from this point of view, though their previous studies, published in 1902, were disappointing. By the use of a new and a much more delicate technique, they studied the cells of the ganglion in eight cases of tabes. They find atrophy of the cells and disintegration, even to total disappearance. In spite of the frequency and importance of these lesions, they find it difficult to indicate the role they play in the atrophy of the posterior nerve roots, but they are too constant not to be considered in the pathogensis of tabes.

A brief paper by Raubitschek[53] should be mentioned as throwing some light on the reason for the absence of paralytic symptoms and of atrophy in cases of tubercular focii in the spinal cord and brain. He finds that the axis cylinders are persistent in the tubercular process even when it is of considerable size This part of the review can be closed most fittingly by a brief reference to the larger aspect of the pathology of the nervous system which the problem of heredity from a biological point of view has inspired, as in the work of Beard[54] on the morphological continuty of the germ cell as a basis of heredity. In his paper before the section on psychological medicine at the British Medical Association, he attempted to extend to psychiatry the larger biological aspects of the question of heredity. This is to be most enthusiastically commended. As a part of the evidence of the importance of this aspect of Beard's work is the paper by Konig[55] of Daldorf, who, in a careful analysis of 3,329 cases of insanity, finds that the clinical data do not clash with the facts of Beard's investigation. It is very probable that this work and others of a like character will open to us an altogether new field of investigation into the origin and perhaps the cause of physical abnormalities.

On the question of diagnosis the greatest activity is found in the study of the cerebro-spinal fluid. The microscopical study of the fluid for the presence of lymphocytes as an aid to the diagnosis of tabes, meningitis, etc., was mentioned last year, and it was noted that little work on the subject was done outside of the French clinics. This year the number of papers that have appeared has been large, and they are from almost every well known clinic in Europe and in this country. Campbell[56], in a very readable article, gives a general resume of the subject, noting particularly the usefulness of the estimation of the osmotic tension in the fluid. This is particularly so in meningitis. A good bibliography is appended to the paper. Donath[57] has contributed several pieces of work in the chemical investigation of the fluid. These papers are of interest in that they offer a tentative explanation of the toxic character of the blood and fluid in epilepsy. For example, he has found in nineteen cases out of twenty-two, cholin in the cerebro-spinal fluid of epileptics of an idiopathic variety. In hysteria and neurasthenia he did not find it. In dementia paralytica tabo-paralysis the test was

positive. It is only fair to say that his findings have been criticised especially by Mansfield & Wilson. Dana's[58] experience in twenty-two cases confirms that of other observers, especially in regard to the presence of a lymphocytosis in general paralysis. Fraenkel[59] examined thirty-three cases with mostly positive results. Chaufard and Boidin[60] give the results of a year's work in lumbar puncture in the service of a general hospital. The earlier results of Widal and his pupils were confirmed in the 223 punctures that were made, as far as tabes, paralysis, tubercular meningitis and zona were concerned. Nissl[61] writes on the use of the lumbar puncture in insanity with the tabulation of 128 cases. He concludes that for the diagnosis of dementia paralytica the examination may be of some value, but that its general diagnostic importance is slight. He is distinctly opposed to the favorable reports of its usefulness in meningitis.

The whole question must be regarded as at present unsettled. That its value will be determined in the near future is very probable from the large amount of work that is being done. It is likely that the importance of a lymphytosis will become less as the investigations of the chemical changes found attract more interest. Fuchs'[62] investigation into the measurements of the size and the light reaction rapidity of the pupil in cases of nervous and mental diseases should be of some consequence to neurologists, for the reasons that his results are not in line with some of the notions formerly held on this point and for the reason that the rough clinical methods used by the average neurologist in his examination of the pupil has led to results that will not stand the test of more exact technique. The treatment of nervous diseases, as can be seen from the purely therapeutic papers, is developing along the lines of physical and physiological methods. Bianchini[63] writes interestingly of the utility of work in asylum practice, and notes the striking fact that those patients who show the greatest tendency to recovery and are the earliest candidates for discharge from the asylum are those to whom work comes most natural. Gerhartz[64] attempted to use the blood serum of epileptics in the manner devised by Ceni, but obtained the same discouraging results as others who attempted it. There is contained a sharp criticism of Larredde's book on the treatment of tabes and demential paralytica by enormous doses of mercury subcutaneously, and his theory of the metasyphilitic conception of these two diseases by Mobius in the general review on tabes in Schmit's Jahrbucher[65]. Attention might also be called to a paper by Masoin[66] describing the colony treatment of the insane at Gheel in Belgium. This is the oldest insane colony known. The use of the x-ray in the treatment of certain nervous diseases has already been attempted; therefore, reference to Obersteiner[67] experiments on the changes produced on the nervous structure of white mice when exposed to the action of x-rays are fitting. He found hyperæmia, hæmorrhages in the cord and meninges and encephalitic focii.

In the reviews of the preceding two years the new method devised by Toulouse and Richet, of treating epilepsy by salt starvation and the substitution of the salt taken from the food by sodium bromide, was described with some detail, and the results of the treatment from various sources was given. There has been observed a gradually growing disinclination to use the method on a large scale, and the reports have become less and less and the successes have become fewer. During the past year only a small number of papers on this subject have come to the reviewer's notice. Turner[68] experimented upon female epileptics in a colony. These patients were very well known, and a record of their seizures and their mental condition were at hand for comparison. His results are interesting, and serve to explain the lack of enthusiasm in those who have a large material of epileptics under treatment. In five out of eight cases there was a diminution in the number of attacks. In three cases there was a lessened number of attacks for three months succeeding the treatment. In three cases the petit mal attacks increased in number. The mental condition showed no marked improvement. In four cases there was an increase of body weight. The treatment cannot be looked at in any way as a specific treatment of epilepsy, but merely as a relief of symptoms, the employment of which carries with it certain disadvantages, the chief of which is that the patients soon tire of it.

There have appeared during the year a notable number of monographs, a review of which would be in place here if space permitted. Mention, however, should be made of Jamin's work on the study of muscle in experimentally produced paralysis. One result of his work is likely to be a total revision of our former conceptions in regard to the electrical reactions of nerve and muscle. Mueller's monograph on multiple sclerosis is the most considerable addition to our knowledge on the subject since Redlich and Obersteiners' work some years ago. Camus and Pagniez's extensive work on the results and methods of the method of isolation pursued in the treatment of the neuroses in Dejerine's wards at the Salpetriere is very welcome and deserves to be read with attention, because here the rest treatment is carried out on a charity material with success. Dubois contributes in his book on the moral treatment of the psychoneuroses a very careful psychological analysis of the methods used by him with most unusual success. These two last works certainly fill out a gap in our literature of the therapy of nervous diseases. Freud's monograph on the psychology of everyday phenomena which are abnormal, but are scarcely considered so, is very good reading. Edinger's new edition of his well-known "Anatomy" is more valuable than ever, and Oppenheim's new edition need only to be mentioned to be praised.

Neurology and medicine in general has suffered the loss of three men in the last year that will be felt for all time. Weigert has in many ways made progress in the field of neuropathology possible by the dis-

covery of technical methods which are used by every laboratory worker. His work on "Neuroglia" will stand for a long time as the model after which investigations on the finer anatomy of the nervous system should be planned. Gilles La Tourette, in Paris, and Jolly, in Berlin, will be missed by many a student who found their teaching so illuminating.

The writer of this review feels bound to say, in closing it, that the amount of material at his disposal for selection was so large that double the space here filled would not be sufficient. If some of the lines of advance have here been indicated or only hinted at, the chief purpose of this paper has been fulfilled.

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GENITO-URINARY SURGERY.

IN CHARGE OF

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We are indebted to Kreissl for calling attention to the gross exaggeration of the efficacy of topical applications in the upper urinary tract as applied through the ureter catheter; it has its useful but very limited sphere. The same author calls attention to the fact that instead of repeated catheterization, in some cases it is of advantage to leave the catheter *in situ* for at least a week at a time. He demonstrates that it is harmless even if so maintained for several weeks. In certain forms of renal and ureteral fistula the catheter *a demeure* gives brilliant results.

Kelly says that the wax-tipped catheter has never failed him in diagnosing ureteral calculus, but in renal calculus, if the stone is lodged in dilated pouches, it may fail. In order to wax the catheter, two parts of dental wax and one of olive oil are melted together. The end of the catheter, or the whole of it, is dipped into this and allowed to cool in the air. He regards this method and the x-ray as complementary to each other, both being liable to error. The x-ray is not always convenient, is expensive, requires skill, is apt to burn, and often fails in very stout persons and uric acid calculi.

We are led to believe by Ayres that many cases of chronic discharges succeeding acute inflammations of the lower urinary passages are due to an unrecognized and untreated pyelitis. Pelvic lavage, with a weak solu-

tion of nitrate of silver, has been of immense service, not only in clearing up the pyelitis, but in curing a beginning nephritis due to it; and even parenchymatous nephritis may be thus wonderfully benefited.

A novel method for helping a stone to pass from the kidney to the bladder has been instituted by Schmidt. He injected sterile liquid albolene through a ureter catheter into the kidney pelvis and along the ureter as the instrument was being removed. Later the calculus was passed.

Holischer and Schmidt have modified Brenner's ureteral cystoscope so that both ureters may be catheterized at the same sitting, and both catheters may be left in, after the cystoscope is removed. It, furthermore, permits the use of catheters with injection attachment at the distal end.

Hunner calls attention to the possibility of infecting the other kidney with tubercle bacilli when ureteral catheterization is done in tubercular cases. He brings prominently forward that the first symptoms of renal tuberculosis may be expressed in bladder symptoms. While the disease of the kidney is compatible with a long life of comparative health, and in some cases there is a tendency to spontaneous healing, yet its treatment is pre-eminently surgical. Where the disease is bilateral, or in associated disease of the lung, the anesthetic is of great importance. Local cocaine anesthesia may be used for nephrotomy, and nitrous oxide gas for nephrotomy, nephrectomy or nephro-ureterectomy.

Recognizing the possibility of infecting the sound kidney in employing ureter catheterization, in order to prevent it, Vineberg, after exposing the orifice of the ureter with a Kelly cystoscope, surrounds it with the distal end of the instrument, and then, with a pledget of cotton soaked in an antiseptic, he cleanses the interior of the cystoscope and the mouth of the ureter before inserting the catheter. He finds that Voelcker and Joseph's indigo-carmine method of testing the functional capacity of the kidneys has been quite satisfactory. While it is Israel's practice to remove the ureter with the kidney in renal tuberculosis, yet the good results obtained by removing the kidney and leaving the ureter seems to justify this procedure. Strange as it may seem, primary nephrectomy for renal tuberculosis carries a lower mortality rate than when it is preceded by nephrotomy.

Decherd reports a case with two ureters to each kidney. The four ureters had separate pelvis and separate openings into the bladder. Cathelin collects fourteen cases from literature where the two kidneys are intimately interwoven, the one below the other, both on the same side of the vertebral column, and five cases in which the kidneys are thus situated, but entirely separate from each other, the ureteric orifices in the bladder maintaining their normal arrangement.

Denis informs us that complete absence or extreme atrophy of one kidney is found once in 2,650 cases; horseshoe kidney once in 1,000 cases; and fused kidney, exclusive of the horseshoe variety, once in 16,000 cases.

An extensive investigation of ascending renal infection, with special reference to reflux of urine from the bladder into the ureters as an etiological factor in its causation and maintenance, has been undertaken by Sampson. The vesical portion of the ureter changes under the various degrees of dilatation and of intravesical tension of the bladder, and in each of these conditions one may find special provision for guarding the lumen of the ureter, and thus preventing a reflux of urine from the bladder into the ureter. Under all conditions of the bladder, the direction of the current of urine from the kidney to the bladder is a constant factor in the prevention of ascending infection; so that a reflux of urine from the bladder into the ureters may be considered an etiological factor in the causation and maintenance of renal infection, only when the intravesical portion of the ureter is diseased, thus impairing its function, or when some ureteral abnormality exists.

The newer methods of diagnosing unilateral kidney lesions, such as cyroscopy, phloridzin test, etc., from the observation of Krotoszyner and Willard, are not to be relied upon *per se;* however, these (in conjunction with the older and ordinary methods of examination of the separate catheterized urine) should certainly enable us to get a fair idea of the functional value of either kidney, and to arrive at safe conclusions from our findings as to intended operative procedure.

A calculus in the ureter is a menace not only to health, but to life, and its removal is an operation of low mortality, provided it is undertaken before secondary changes appear in the kidneys. It may be extracted extra-peritoneally. The wound should be sutured by either catgut or silk. The x-ray, though the best means of locating stones, is in certain cases not *sufficient in itself.* (Tenney.)

Great hope for the cure of vesical tuberculosis is held out by Halle and Motz to those cases in which the lesions are limited, even though they be ulcerated deeply. If the lesions are diffuse there is a different prognosis. The curative treatment consists of internal medication combined with, in some cases, topical applications and surgical procedures. The fact that after the removal of a tubercular kidney, the vesical symptoms and lesions often disappear, has of late been prominently noticed. Especially in painful and hemorrhagic bladder lesions, even though the renal or prostatic foci are untouched, curettage and cauterization followed by active and prolonged topical applications, relieve the active symptoms and may arrest its further progress.

Hubbard is unable to account for the fact that after renal decapsulation one patient should survive and be greatly benefited, another survive with the progress of the disease not arrested, while the third quickly dies. Out of seven cases two seemed to be progressing towards cure.

Edebohls admits that after decapsulation a new capsule forms about the kidney within a space of a few months, and while he says it is more vascular and less tough than the original, the consensus of opinion of

other writers who have approached the subject, either experimentally or in actual service, is that the secondary capsule quickly forms, is no less tough than the original, and its vascular supply is not more generous than the former capsule.

Of nine cases of decapsulation operated upon by Balch, one case only is probably cured, one eleven months after operation is still gaining, and two, a year after operation, show very little, if any improvement.

Freeman suggests that a prominent cause of renal hæmaturia, which is often unilateral, is chronic interstitial nephritis, and that decapsulation in these cases offers a good prospect for cure of both the hæmaturia and the nephritis. He reports one case apparently relieved in this way.

Two years after doing a double renal decapsulation the patient developed anuria convulsions, and when he had but a few hours to live. Edebohls did a redecapsulation which started the urine to flow, but was done too late to counteract the uremia. He advises the removal of the kidney capsules for any one who has a reasonable expectation of life of not less than a month without operation, provided there is a clear and unequivocal establishment of the diagnosis of chronic Bright's disease; that there is an absence of absolute contraindication to any operation; and that the surgeon is reasonably familiar with surgery of the kidney—claiming that even marked changes in the heart and blood vessels disappear after it. However, those cases with albumenuric retinitis have been very discouraging to the author. He believes kidney decapsulation properly applied is almost a certain cure.

Suker, who has undertaken an investigation as to the advisability of operating upon cases of chronic Bright's disease with retinitis or neuroretinitis, with or without hemorrhages, has come to the conclusion that it is absolutely contraindicated.

In an extensive and admirable paper upon the subject, Elliott gives a broad-minded view of chronic Bright's disease. According to him, it is a diseased condition of the entire system, is of very gradual development, and in a great majority of cases has existed for months and years before the case comes under observation. There is a chronic toxæmia which produces widespread arterial and cardiac degenerative changes, and it is to these that are due the most threatening elements of the disease. It is to the failing heart that is, in a great measure, due the dropsy and terminal anuria and uremia of chronic nephritis; so that the therapeutic problem is a question of sustaining a failing heart. Chronic nephritis is a disease of slow and spasmodic development, with exacerbations and remissions such as to sometimes simulate a cure. That the general condition of the patient improves after the decapsulation is nothing more than what we may get from hygiene and rest. The fact that a tougher capsule sometimes develops after decapsulation may account for the many relapses and deaths within the first three and one-

half months, and, at least, narrows the prospect of improvement to a period of months.

Ferguson finds that the mortality from renal decapsulation is 9 per cent., and infers that when the limitations of the operation are more clearly defined, and the operation performed earlier, the mortality will be much reduced. He compares the condition of the kidney in acute inflammation to the phlegmonous imflammation of the hand, where free incision promptly relieves the tension and liberates the imprisoned poisonous materials. As the symptoms and signs of nephritis in cases of floating kidney are indicative of a true nephritis, and a floating kidney is a frequent cause of chronic nephritis, by constantly interfering with its vascular supply, nutrition and free excretion of urine, and, furthermore, in his experience, cases which in the beginning did not give any disturbance to the patient later had to submit to operation because of painful and annoying symptoms, he is convinced that floating kidneys should be treated by decapsulation and fixation.

Hall and Herxheimer experimentally produced acute nephritis upon rabbits, and noted the effect of decapsulation in these cases. They found that decapsulation means the removal of a portion or the whole of the capsule, with more or less laceration of the cortical tubules and hemorrhage, and the exposure of a raw absorptive surface. Eight to fourteen days after the operation the kidney is surrounded by a thick, strong, connective tissue capsule. They suggest that what improvements follow decapsulation may be due to action upon the sympathetic ganglia, and that simple reni-puncture, instead of a complete decapsulation, may take its place, relieve tension and promote renal functions.

Following the experimental decapsulation of kidneys in rabbits and normal dogs, Gifford finds that in all cases over two-thirds of the capsule had been removed by the operation, and that in either normal or diseased kidneys there is an increase in size of the kidneys after decapsulation, persisting for a month at least; also congestion, most marked in the intertubular blood vessels in the cortex. However, the renal epithelia remain intact. A new capsule, at first vascular and quite thick, is very distinct at the end of eight days, which at the end of six months returns approximately to the normal thickness and vascularity. No new blood vessels are formed which anastomose with those of the kidney.

It is suggested by Ruggi that the kidneys possess the power of internal secretion, and in movable kidney, which, on account of its excursions, has a disturbed circulation, there is thus a modified renal secretion, and an alteration of the trophic nerve and the central nervous system, so that a general neurosis is set up.

Legueu reports three cases in which an abnormal disposition of the blood vessels of the renal pedicle caused pressure upon and obstruction to the uretera— hydronephrosis.

In 10 per cent. of his cases of nephropexy Taylor found unsuspected lesions, so he regards it as not uncommon for a movable kidney to be the site of some lesion. Therefore, if the movable kidney gives definite symptoms, a well-performed nephropexy should be done.

Legueu gives his attention to the influence of pregnancy upon a previously healthy kidney, as well as upon an already existing pyelonephritis, and recommends premature induction of labor where the pyelitis is bilateral and the symptoms sufficiently intense to necessitate intervention. If the disease is unilateral, nephrotomy is justifiable in the first seven or eight months of pregnancy. Later, premature labor should be induced.

According to Thorndike, in prostatic hypertrophy the catheter has a wide range of usefulness, but should be discarded at the moment when it ceases to palliate, and not after months and years of further unavailing struggle to make it so. The Bottini operation should not be classed with the more radical enucleations, but is an efficient palliative procedure, having its own appropriate use.

Telluride speaks of the advantage of preliminary perineal drainage in desperate and debilitated cases, the prostate being removed at a second operation.

Watson tells us that Gouley was the first to deliberately and clearly formulate a plan for the removal of the entire gland from the perineum, while Albarran appears to have been the first to introduce the prostatic tractor. Watson's choice of operations are these: First, the perineal prostatectomy; secondly, suprapubic operation; then the Bottini, and, finally, perineal and suprapubic drainage.

Meyer thinks that the catheter should no longer be advised as a routine measure, and as soon as its regular use is necessary it is time for a more radical procedure, perineal prostatectomy being the method of choice. It is the patient's general condition, not his age, that furnishes the contraindication to operation. He is an advocate of spinal anesthesia, if the effects of a general anesthetic are feared. The Bottini operation yields excellent results.

According to Mr. Freyer, the prostate is composed of two glands almost as separate and distinct as the testicles, which empty through their ducts on each side of the caput gallinaginis. They are surrounded by distinct capsules which are fused together in the median line. In the operation advocated by Mr. Freyer these glands are enucleated suprapubically by means of the index finger introduced through an opening over the most prominent projection of the prostate into the bladder, usually leaving the prostatic urethra, but sometimes injuring it. Of the 110 cases reported by him three were cancerous, leaving 107 of adenomatous prostates. Of these ninety-seven were completely successful. In another article Mr. Freyer gives in detail the after treatment employed by him.

Walker says that the third lobe of the prostate is a misnomer, for it is nothing more than a projection, pedunculated or otherwise, from either one lobe or the other. The modification of the sexual function depends upon how much injury is done to the ejaculatory ducts. The sexual function once learned is rarely ever lost entirely. Cancerous enlargement of the prostate is not infrequent. The perineal and suprapubic routes are preferred, although the electrocautery, as advocated by Chetwood, is of service in the hands of some.

Horwitz believes that the attempt made by other operators to save the ejaculatory ducts is illusory, and that the Bottini operation is the one of choice in suitable cases. Of the prostatectomies he prefers the perineal method as advocated by Bryson. The dangers attendant upon daily catheterism are considered greater than those of radical operation performed at the onset of the symptoms caused by the obstruction. The proper time to perform a radical operation is reached as soon as it becomes necessary for a patient to resort to daily catheterism.

According to Wiener, by the use of laughing gas and rapid work there seems to be practically no contraindications to suprapublic prostatectomy. The less instrumentation to the urethra and bladder before the operation the better for the patient and surgeon; so that previous to the operation the author allows a patient's urine to accumulate in his bladder for about twelve hours in order to distend it, when the operation of Mr. Freyer is done. All the contraindications usually mentioned are not for the operation, but for the administration of ether or chloroform. He rarely takes more than twelve minutes to perform the operation, which has a mortality of 4 per cent.

Syms inveighs against the use of the cystoscope and metal catheters in prostatic hypertrophies, believing that it is safer to do a perineal section on the patient at once than to subject him to prolonged manipulation to enter the bladder. All previous manipulation of the bladder to operation is regarded as harmful. The indications for operation are, frequency, pain, cystitis, hemorrhage, catheter life, stone, residual urine (extreme), dilated bladder, contracted bladder. The Bottini operation is objected to, as well as the suprapubic route for prostatectomy. Syms again calls attention to his method of doing prostatecomy.

Fuller speaks of the passing of the makeshifts gotten up to take the place of the radical operation, due to unsatisfactory results from them and the increasingly better results following prostatectomy. He considers the suprapubic route, the perineal cystotomy and perineal dissections, the aim being to avoid opening the urinary tract or rectum. He seeks to select that method most suitable for the case. The perineal dissection will never be generally adopted, because of the time consumed and the surgical mishaps (tearing urethra, rectum), and besides it does not provide drainage for inflammations and infections of the urinary ways. Perineal cystotomy is applied in a certain number of cases,

especially those where the enucleation is not difficult, being those cases where the capsula propria of prostate is not adherent to the surrounding capsule; but when there is a need of complete rest and drainage of the bladder (foul cystitis, hemorrhage, phosphatic calculus), a suprapubic opening allows this better. He is accustomed to making perineal vent also in order to establish perfect drainage. Fuller claims that Mr. Freyer's operation is essentially the same as published by him in 1895. Three hundred prostatectomies with 5 per cent. mortality, if uremia cases excluded, are reported.

Goodfellow utters a word of caution as to the use of instruments in cases of prostatic hypertrophy. He describes his own method of doing perineal prostatectomy, and reports seventy-five cases, with two deaths. He calls attention to and gives in detail three cases of syphilitic enlargement of the prostate which yielded to specific treatment, and suggests that possibly a larger proportion of enlarged prostates than heretofore supposed are sequelæ of syphilis.

Walker finds that the prostate has a capsule of its own, which surrounds it and sends partitions into it, and to which it is intimately attached. Around this capsule, which is called the capsula propria, is another capsule made up of the pelvic fascia. In hypertrophy the capsula propria is thickened, and thus more individualized. From the findings at the autopsy of four cases operated upon after Freyer's method, the prostatic urethra was torn at the veru montanum, the ejaculatory ducts remaining as a tongue-like projection.

Motz and Arrese find in those cases which have urinary symptoms of prostatic hypertrophy without any enlargement of the gland, the vesical atony is not caused by the bad state of the muscular tissue, and that the extirpation of the gland, which, at least in appearance, could form no obstacle to the emission of urine, can re-establish the normal function of the bladder with individuals who have had complete retention.

Pousson says that cancer of the prostate and bladder develop independently of each other in the majority of cases, and while the mortality up to the present time of cases operated upon is 31.8 per cent., he suggests that an enucleation undertaken earlier will bring better results. Out of three cases of his own which he has been able to follow, one was in good health, and completely emptied his bladder nine months after operation.

Vanverts calls attention to torsion of the spermatic cord, which produces a congestion of the testicle and epididymis, and is very rapidly succeeded by intratesticular and intra-epididymal hemorrhage, which is fatal to those organs. In about one-fourth of the cases, cure occurs from spontaneous readjustment. It is when the testicle is in an ectopic state, and the tumefaction is in the inguinal canal, that diagnosis is difficult and relief, by attempt to untwist the cord, is impossible; therefore, operation at an early hour is called for.

Revel reports three cases of nocturnal incontinence of urine lasting from infancy, which he cured by injecting an artificial serum between the rectum and the sacrum.

Cathelin again calls attention to the advantages of his segregator.

Millet says the cystoscopes which are constructed for air dilatation of the bladder may be used with water inflation, and offer the advantage that through the air tube a stream of water may be directed into the bladder, and the bladder repeatedly irrigated for the purpose of washing away blood clots, etc.

Berg proposes a radical operation for malignant neoplasm of the urinary bladder. Here he opens the peritoneum behind the symphysis pubis, and, after raising the peritoneum from the pelvic floor, dissects out the glands and lymphatics along the internal iliac artery, together with the surrounding loose cellular tissue, dividing the ureters if need be, and afterwards transplanting them into the bladder fundus. As much of the bladder wall as indicated may be exsected and the remaining portion sutured. Perineal drainage of the pelvic floor through the perineum is used.

Herring has obtained good results in cases of vesical papilloma by irrigations of silver nitrate solution in gradually increasing strength, and says there is reason to hope that papillomatous growths may be entirely destroyed by long-continued applications of this solution.

Berg reports a unique case of ectopic testicle in which the right testicle was at the left internal ring, where a hernia existed; both cords were intimately connected with the hernial sac. The scrotum showed no evidence of division into two compartments. Both testicles were fixed by operation in the left scrotal sac, and the hernial sac united with sutures, all with good result.

Kenney says that formaldehyde as an artificial ingredient of urine will make it appear albumenous, and will prevent a typical reaction when albumen is present; and calls attention to the fact that the therapeutic use of uretropin may produce a pseudo-albumenuria.

Penn, having a distended bladder to deal with, bent a canula and trocar so as to give the instrument the curve of a urethral sound, and tapped the bladder with it. Through the canula he easily passed a small silver sound into the urethra, thus doing retrograde catheterism readily, and simplifying the operation of external perineal urethrotomy "without a guide."

Pringle obtained fairly good results by transplanting portions of the urethra of the ox into the urethra of man, especially in the perineal region, which is more easily kept at rest than the penile portion.

According to Fuller, cutting into and draining the seminal vesicles relieves inflammation about these parts, and in this way improves the sexual function. His thirty-three cases without mortality show that the operation is devoid of much danger.

Van Hook adds another to our methods of finding the posterior urethra when operating "without a guide." With the patient in the lithotomy position and an adequate perineal wound, place the volar surface of the index finger against one of the rami of the pubic bones; cause the finger to follow the arch of the pubes from a point chosen on one side to a point corresponding on the other side. The finger being moved transversally across the perineal structures, with no important tissues between it and the rectum, the urethra is necessarily felt between the finger and the pubic arch. It slips under the finger as a broad, somewhat flattened band. The urethra being fixed by two fingers against the pubic arch, the soft mass in which it lies may be boldly incised with a knife.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

The greatest works in any branch of medicine are those that teach great general truths; those that take a chaotic mass of facts and systematize them into their proper order. A master of such a character comes rarely to mould into a solid structure the material of many workshops; thus, in dermatology we have had in Willan, Hebra and Unna, masters who have taken known facts and have laid the foundation of dermatology, upon which future generations may build. A master hand is now needed to grasp the rich material of the present day knowledge; to conform it, mould it, classify it, bring order out of the chaotic mass of brilliant individual detail work that is being daily produced. All this work, even the smallest observation, when based upon well observed facts and conscientious study, is of importance in the great structure. Out of the thousands of conscientious workers and students delving in the field of dermatology some master must soon arise. Dermatologic literature is rich in valuable material. Reports of special and interesting cases are minutely detailed, the journals teem with splendid work of this character, but, articles of a general nature, dealing with this subject broadly, are rare. The French are, no doubt, the foremost in this direction, and, now and then, in the English journals, one finds a thesis upon some general dermatological subject. The text-books in English lack individuality and character. The pages speak not of the writer and his individual experiences and opinions. This year has produced its mass of literature, and in the opinion of the writer it is unusually rich and shows a greater amount of painstaking and careful work than that of the preceding year. From America many excellent papers have emanated. Yet the time has been devoted to detail, out of which, of course,

all great truths must emanate, as was pointed out by Aristotle over two thousand years ago. Leslie Roberts[1], whose articles are always refreshing, and turn one's attention into new and unique fields, has struck the key-note of progress in an effort at generalization. He says:

"The tendency of the last hundred years, to say nothing of the prescientific ages, has been to individualize diseases of the skin, and this was but natural, for eruptions are like things in general, inasmuch as they possess form, size and color, the three characters which the mind instinctively associates with individuality. Hence, when one disease assumes the aspect of red, scaly patches, while another appears in the form of red papules, the human mind instinctively individualizes these forms. The attention of the observer is concentrated on the form and color of the eruption; if he be learned in the language of dermatology, he clothes his individual diseases in garments woven out of words. Open any text-book on dermatology and see how largely the doctrine of efflorescence looms in the mind of the writer. Page is piled on page to describe spots and patches. How minutely he describes their size and color! It has been well said that life is a lesson in the falsehood of appearances, and in no department of knowledge is it more imperative that 'the judgment of the senses must be corrected constantly by experience' than in dermatology. . . . It is now a hundred years since Willan published his classical work. His was the age of artificial botanical classifications. The regions he and his early successors traversed were unexplored. Everything was fresh, and every object they stumbled across was a delightful discovery. With the increased use of the microscope much was hoped for, and truly the harvest was great. But after all, we have not found all we set out to seek; indeed, problems of causation have grown more intricate. The sooner we learn the fact the better it will be for us, that the microscope does not reveal causation, although it has revealed the science of pathological anatomy."

To follow intelligently the course of this author's reasoning, we must quote freely from his article, and we do so as we think the ideas thus brought forward point the way for future thought and research. Roberts goes on to say that, "It is true the microscope in the case of parasitic reactions reveals a foreign organism in the tissues, but it does not prove that the microorganism is the *cause* of the disease. The proof of this is afforded by experiment and by observation of the contagious propagation of the disease. But if we exclude the parasitic diseases, there remains a very large class which includes some of the commonest diseases of the skin. This class includes urticaria, erythemata, the eczemas, psoriasis, lichen, dermatitis exfoliative, and various forms of hydroa. We can search the tissues through and through, but the microscope reveals little more than a redistribution of matter. . . . Surely here are indications that the time has arrived when we ought to examine our

methods of research, and I am glad to see others are of the same opinion. Phillipson, Torck and Brocq have already made a new departure."

The principles of cutaneous reaction rest upon the laws of dynamics and not on morphology. The whole article is a strong plea for the study of live skin and not dead skin. The latter reveals the portion of the structure involved, but we must remember that the different layers or parts of the skin are physiological factors, having their functions in life and are ever active under a "true" or "false" equilibrium. Therefore a study of these non-parasitic diseases is a study of the true physiology of the part and the various factors which make up its life work.

Brocq[2], in a masterly dissertation entitled "General Conception of Dermatoses," dwells at length upon the subject of cutaneous reaction, going step by step over the field of these various reactions, and draws particular attention to those diseases that are not of parasitic origin. In these he uses as illustration comparisons with the various drug eruptions, pointing out that from these known agents various eruptions may be produced simulating like efflorescences of absolutely unknown origin, and that a certain drug may cause in different individuals dermatoses of vastly different character, and that various drugs may cause in the same individual similar eruptions. Therefore, cutaneous reaction and its proper understanding and solution holds the future of the true dermatologic knowledge; synonymous with this is the subject of physiology and physiological chemistry. Brocq's studies are completed by the following classification, and, as it is short and illustrates his manner or method, we give it in full:

Group I.—True Morbid Entities.

Class I.—Artificial Dermatoses.

A. Traumatic, of external origin.

B. Internal origin, provoked by the introduction of irritant substances, medicinal or alimentary.

Class II.—Parasitic Dermatoses.

A. Caused by animal parasites.

B. Caused by vegetable parasites.

Class III.—Microbic Dermatoses.

A. Caused by micro-organisms highly specialized and known.

B. Caused by micro-organisms very probably highly specialized, but as yet unknown; syphilis.

C. Caused by micro-organisms ordinarily inhabitants of the skin and are only pathogenic under certain circumstances, and their activity is often significant of a cutaneous reaction dependent upon a general condition.

Group II.—Cutaneous Reactions.

Class I.—Cutaneous Reactions, properly speaking.

Class II.—Cutaneous Reactions, in which the troubles of the nervous system play the major role.

Class III.—Cutaneous Reactions, characterized by disturbance in the normal nutrition of the tissues.

Class IV.—Cutaneous Reactions, characterized by a deviation from the normal type of the tissues.

Another important field for research is that of the blood of patients affected with skin diseases. The literature upon this point is rather meagre, and no doubt offers much for the future, especially as a differential diagnostic feature. H. S. French[3] has made a very valuable addition to this particular branch of study. It has been stated that in diseases of the skin the coarse, or granular, eosinophile cells are relatively increased in large numbers of cases, especially in pemphigus, urticaria, dermatitis herpetiformis and psoriasis. Dr. French's findings were as follows: Twenty-one out of sixty-nine cases, or less than one-third, showed eosinophilia; three out of eight with eczema; three out of ten with lupus vulgaris; one out of five with measles; four out of six with pemphigus; three out of four with psoriasis; two out of nine with scarlet fever; two out of three with scleroderma; two out of thirteen with syphilis, and none at all with acne vulgaris, burns, erythema from salol, erythema multiforme, herpes zoster, lichen planus, chronic urticaria. The only cases in which it was marked, six in all, were one case out of eight in eczema; one out of two with lupus vulgaris; three out six with pemphigus, and one out of four with psoriasis. Therefore, eosinophilia is, apparently, far from common in skin diseases, and when it does occur it cannot with certainty be ascribed to the skin disease, nor does the extent, intensity and duration of the skin affection seem to have any relation to the amount of the eosinophilia.

The conclusions drawn from the examination of the blood of ninety cases is interesting.

1. There were a very large number who showed no eosinophilia at all.
2. There were a few who showed slight eosinophilia.
3. Only four showed marked eosinophilia.
4. There were none of the skin conditions investigated in which eosinophilia was not the exception rather than the rule, except in—

(*a*) Pemphigus.
(*b*) Dermatitis herpetiformis.
(*c*) Possibly xanthoma diabeticorum.

5. There were a large number of skin affections in which, so far as the research went, no single case of eosinophilia occurred.
6. There were parasitic diseases showing no eosinophilia.
7. There were a few individuals suffering from psoriasis, from eczema or from syphilis who showed eosinophilia, but many who showed none; so that, owing to its erratic occurrence, the presence or absence of eosinophilia will not serve as a means of diagnosis between syphilitic affections and the other two.

8. There was no evidence in favor of "Canon's law."

9. There was, upon the whole, but with individual exceptions, a relative diminution of polymorphonucleated cells.

10. There was a tendency to a relatively high proportion of lymphocytes.

11. The fall in percentage of polymorphonucleated cells was approximately equaled by the rise in percentage of small lymphocytes.

12. The lymphocytosis was not constant, except in the patient's suffering from—

(*a*) Congenital syphilis.

(*b*) Urticaria.

Z. Verroth,[4] in a study of three cases of dermatitis herpetiformis and two of pemphigus vulgaris, found eosinophilia in the blood and in the bullæ, when more purulent.

C. Adrian[5] found, in the study of the blood in xeroderma pigmentosum, the relation of cells normal; no leucocytosis; the hemoglobin was diminished. Other writers have found marked blood changes due to the changes in the skin, possibly, physiologically affecting the general system.

Vernet,[6] in the blood count of three cases of infantile eczema, concludes that eosinophilia is as marked in the new-born attacked by eczema as in adults. The increase in eosinophilia was always *followed* by an increase in the cutaneous symptoms. In one case granulation acidophiles were noted.

The scientific study of the urine in diseases of the skin is a step of prime importance in the proper understanding of individual cases, and through the reports of many such analyses a more rational knowledge may be obtained of the apparent etiology and therapy of certain diseases, thereby placing them upon a practical basis. The French place great value upon this point, their reports being accompanied by careful analyses of the urine and other excretions. At the Fifth International Dermatological Congress, held in Berlin last September, one of the subjects appointed for discussion was "Nutritional Disturbances in their Relation to Skin Diseases."[7] Van Noorden states that certain cutaneous maladies are directly consequent to troubles of nutrition, as myxedema. There is an increase in the elimination of the albuminoides in pityriasis rubra, pemphigus, lichen ruber, while they are diminished in syphilis, but return to normal upon the administration of mercury.

The elimination of indican shows abnormal intestinal fermentation. Certain dermatoses are secondary; pseuda-leucemia and mycosis fungoides are diseases of the bone marrow; purpura a malady of the blood. All researches upon urinary elimination are without value because no balance is struck between the elimination and the amount of food received into the system.

Jadassohn[8] believes that autointoxication acts (1) by the toxic sub-

stances being carried to the skin and deposited there, thereby irritating the nerve terminals (urticaria, etc.); (2) by toxins which alter the skin indirectly by their effect on other organs (zona); (3) by the toxins being excreted and irritating the surface of the skin (eczema and diabetes.) Then there are nutritional changes which influence the skin in an artificial manner: (1) Anomalies of nutrition in a proper sense of the word (adiposity, gout); (2) maladies of the organs which regulate nutrition, as the glands of internal secretion; (3) maladies of organs which control digestion, absorption, the distribution of nutritive material and elimination of excreta; (4) toxic maladies which are provoked by substances formed in neoplasms. Brocq and Ayrignac[8] present their conclusions after a study of the urine of 2,500 cases, the principal affections being eczema, the seborrheids, psoriasis, pruritus, prurigo simplex, lichen planus, pseudo-pilare and other rebellious alopecias, acne, parapsoriasis and the erythemas:

1. Nutritional troubles have been constant in all of the cases.
2. There is quite frequently intestinal fermentation.
3. Albumens are increased in some instances, but most frequently diminished.
4. There exists in certain cases a disassimilation of the mineral materials.
5. Urinary insufficiency is most frequent.
6 The seborrheids, eczema and pruritus simplex exhibit the most marked deviation of metabolism,

Buschke[8] finds the elimination of grease by the sebaceous glands is increased by the alimentary absorption of grease, as Von Noorden found in acne.

Radelli[9] has found that arsenic in therapeutic doses influences the elimination of urea, and, at the same time, azotic materials.

J. F. Schamberg[10] suggests the following classifications for "The Toxic Erythemata":

1. Bacterial and protozoal.
2. Ptomains.
3. Leucomains and other metabolic poisons.
4. Drugs.

This group of diseases ranges from an urticaria, through the erythemata to the purpuras and holds an interesting position and the key to future study. These diseases affect both the skin and mucous membrane. J. A. Fordyce[11] and also the writer of this review[12] have lately discussed the "Affections of the Mucous Membrane in Their Relation to Skin Diseases." This subject was brought forward to initiate an understanding of probably similar processes operating upon both forms of tissue. The former writer remarks that in the diagnosis of mucous membrane lesions in general the usual rules which apply to purely cutaneous ones often fail. There is less color contrast on account of

the more translucent nature of the epidermic covering; vesicles, bullæ and pustules do not long exist as such; papular lesions are less sharply defined and more easily eroded; infiltrations readily ulcerate and become infected and squamous types undergo modification by reason of the moisture of the epithelial cells. Many skin diseases attack the mucous membrane, but it is difficult to make a diagnosis of one of these conditions when it exists only upon the mucous membrane, we should have the dermal evidence for confirmation.

The latter writer[12] was inclined to believe that various catarrhal conditions of the mucous membrane were conveyed to the skin by autoinfection, and *vice versa*, the former occurrence being far more frequent. It is also believed that certain intestinal crises and abdominal pains are of an urticarial nature, produced by the ingesta acting *traumatically* upon an irritable or "dermographic" mucosa as the slightest trauma upon a dermographic skin. This may occur with or without dermal manifestations. This subject is an important one to general medicine and deserves further study.

Gaucher and Druelle[13] report a patient affected with lichen planus, in which the conjunctiva presented whitish horizontal bands, with sharply defined outlines situated midway between the ciliary margin and the globe.

W. Kopytowski[14], from the study of twenty-four cases of herpes progenitalis in women, believes that it is pathologically identical with zoster, both presenting the same characteristic cell necrosis. Both are probably of an infectious nature.

Wm. Osler[15] reports two cases of an interesting condition involving the nose, cheeks and hands, also the sclerotics, which was called by Virchow achronosis. It consists of a deposit of bluish-black material in these localities and is associated with alkaptonuria.

Carpenter[16] calls attention to the fact that in urticaria in childhood a marked pulsation can be frequently seen in the wheals synchronous with the heart beats.

No conditions of the skin better display the individuality of cutaneous reactions than those in which bullae are formed. And it brings us forcibly to the conclusion that from the pemphigus group many affections will in the near future be separated from it. The writer's case of "Bulbous Lichen Planus"[17] is interesting, as the bullae were so numerous that the case at first glance simulated pemphigus. The bullae could be produced on the lichen patches by friction, but after the lichen planus disappeared or became under control by treatment, bullae could no longer be produced. F. Krzystalowig[18], basing his remarks upon a case of "Dermatitis (chronic streptococcic) Assuming the Form of a Pemphigus," says pemphigus does not constitute a clearly defined syndrome, in spite of the dicta of Kaposi. The appearance of bullae common to the different forms collected under this name, vary considerably in their

aspect as in their evolution. Only careful histologic and bacteriologic research can throw light on each case.

Stanziale[19], in the study of a case of pemphigus vegetans of Neumann, isolated from the blood drawn from the median-basilic vein a minute bacillus. From the clear vesicles a similar bacillus was grown. The pseudo-diphtheritic bacillus was also found in the vegetations.

Eustis[20] isolated a diplococcus from the bullae of pemphigus vulgaris similar to the one previously described by Claessen and others, which is no doubt a variety of staphylococcus found also in the clear contents of the bullae of bullous impetigo.

Bowen[21] brings out a startling theory, based upon sound reasoning and good clinical grounds, in an article entitled, "Acute Infectious Pemphigus in a Butcher, during an Epizootic of Foot and Mouth Disease, with a Consideration of the Possible Relationship of the Two Affections." Such a condition as the author describes is often fatal, consisting of bullae on the skin and in the mouth and throat. Dr. Bowen suggests that in these cases following vaccination the virus of foot and mouth disease might be introduced with the vaccine virus, if, of course, the calf from which the vaccine was taken had foot and mouth disease or had been exposed to it. The suggestion seems a very reasonable one and is certainly worthy of careful consideration.

Bacteriology.

F. B. Mallory[22], in four cases of scarlet fever found bodies which in their morphology strongly suggest that they may be various stages in the developmental cycle of a protozoon. They occur in and between the epithelial cells of the epidermis and free in the superficial lymph vessels and spaces of the corium. The great majority of the bodies vary from two to seven microns in diameter and stain delicately but sharply with methylene blue. They form a series of bodies, including the formation of definite rosettes with numerous segments, which are closely analogous to the series seen in the asexual development of the malarial parasites, but in addition there are certain closely reticulated forms which may represent stages in sporogony or be due to degeneration of the other forms.

Others have also found these bodies of Mallory and confirm his opinion of their protozoic nature.

W. F. Howard and R. G. Perkins[23] confirm the work of Councilman, and assert that the bodies found by him in variola are stages in the life cycle of a protozoon parasite, and that they are so intimately related to the skin lesions of variola, and are of such a definite character that they are led to the conclusion that these parasites are the cause of the disease.

F. J. Bose[24] believes the parasite of cancer to be a sporozoa which has an asexual mode of reproduction, and a mode of sexual reproduction,

with the formation of kystes and of sporocystes, with a possibility of reproduction by new spore formation.

D. W. Montgomery[25] gives his "Reasons for Considering Dermatitis Coccidoides an Independent Disease," as follows:

1. The cultures are characteristic.
2. The organism has a double cycle of development, the one cycle differing absolutely from the other.
3. There are no budding forms either in the cultures or in the tissues.
4. There is endogenous spore formation in the tissues, and this appears to be the sole mode of reproduction in the tissues.
5. The capsulated bodies in the tissues are comparatively large and are almost always circular.
6. In animal experiments the testicle is a favorite seat of the disease.
7. The infection tends strongly to become generalized.
8. The prognosis is absolutely bad.
9. The administration of iodide of potash has no control over the disease.

R. Harand[26] gives us a *hemoprotiste* as the organism of syphilis. It is found in the lesions and especially in the blood.

H. R. Oliver[27] reports a "Peculiar Infection of the Mouth and Throat with a New Variety of Oidium Resembling Thrush." Several cases are reported, all in patients over twelve years of age. The first symptom is a dry cough, some coryza and pain upon swallowing and aching in the back and loins. The mucous membrane of the tongue, mouth and throat is hyperemic, with enlargement of the tonsils and uvula. The lymph glands under the jaw become enlarged. A thin, grayish-white, shine-like membrane involves the tonsils. New patches of the membrane invade the tongue and cheeks, becoming thickened and adherent. The disease sometimes lasts six months, during which time rebelious ulcers may form. It is a contagious affection. From the patches and membrane a fungus was isolated which was fatal to animals. One of the pathologists working with the material contracted the disease.

Labbe and Demarque[28] describe the case of two infants of "impetigo and echthyma due to the diphtheria bacillus." These children had had diphtheritic angina, accompanied by the above named skin lesion on the face, from which the Klebs-Loeffler bacillus was isolated and associated with streptococci and staphylococci. Antidiphtheritic serum had no effect upon the skin complication.

Veiel[29] has studied "the staphylococci in chronic eczema," and found that in all forms and in all stages that organism is present, generally the yellow, occasionally the white and rarely the other forms. He believes that staphylococci found in eczema to be identical with the common form, and that they play an important part in the course of the disease.

L. P. Hamburger,[30] in an article entitled "Creeping Eruption; Its Re-

lation to Myiasis," brings forward a strong argument in favor of his suggestion. He believes it probable that the two conditions are closely related, especially when one considers the role of the bot fly in the production of the Russian examples of the disease.

P. G. Woolley[31] describes a fungus as a cause of "Pinto: Pano Blanco," the disease in the tropics in the form of pinkish white patches, irregular in shape and size. They may occur on any portion of the body. The fungus forms a meshwork of threads finer than the trichophyton.

Trommsdorff,[32] in investigating the "Bacteriology of Chromidrosis," has isolated two organisms, a red and a yellow bacterium. Inoculation experiments with the yellow produced yellow sweat, but experiments failed with the red.

Tuberculosis.

J. T. Bowen,[33] describes a case of "Peculiar Inclusions in Lupus-like Tissue," similar to a like condition reported by various writers. The case was thought to be blastomycosis, but upon microscopical examination it more resembled lupus with these peculiar bodies within the giant cells. They were round or oval in shape and were often apparently surrounded by a membrane. The author states that it was difficult to not believe them parasites.

Schulze[34] draws attention to "The Presence of Tuberculosis Verrucosa Cutis in Miners." The disease does not commence as ordinary lupus does, but as a small brownish-red linseed-sized macula covered by a white shiny scale. The backs of the hands and fingers are most commonly affected. A total of 116 cases have been collected by Fabrey and Schulze.

L. Pautrier[35] places "Angio Keratoma" among the tuberculides on account of its histological architecture and its coexistence with definite tuberculous signs in other localities and with certain recognized tuberculides.

V. Klingmueller[36] makes a valuable "Contribution to Tuberculosis of the Skin," from Professor Niesser's clinic. His work has been particularly with lichen scrofulorum, which he believes to be of tuberculous origin, due not to the local action of the bacilli, but to their toxins.

A. Alexander[37] contributes to the "Clinical and Histological Characteristics of Folliclis." His article is based upon the study of seven cases, and his observations show the close relation between folliclis and tuberculosis. The histological examination of these cases leads the author to believe that in certain cases the lesions are due to endarteritis and periarteritis caused by embolic plugs from the lung or gland containing tubercle bacilli. Certain other cases are, however, not typical of tuberculosis in their histologic architecture.

Adamson[38] has collected the literature on "Multiple Lupus Vulgaris Consecutive to Measles." He finds that in these cases the tuberculous eruption appears nearly always immediately after or within a few weeks

of the measles. The great majority of the acute cases of tuberculosis of the skin occurred after measles. The embolic theory demands that the emboli must occur in other organs besides the skin, and in two reported cases the patients did succumb to acute general tuberculosis.

Syphilis.

H. Hallopeau's[39] article on "The Toxic and Immunizing Substance of Syphilis" is one of the most valuable studies of the year, but his conclusions go so much into detail that it would be impossible to give them even briefly here. It is to be hoped that this paper will be widely read.

Hullen,[40] in the study "On the Development of the Pigmented Syphilide of the Neck: a Clinical Study," bases his conclusions upon the observation of twenty-two cases. He believes the white areas are depigmented and the pigmented areas are developed from the ordinary roseola and papular eruptions.

E. Boem[41] reports "Accidents of Syphilis Forty-five Years After the Initial Lesion," in the form of syphilitic lesions of the nervous system.

J. A. Fordyce's[42] case of "Symmetrical Cutaneous Atrophy, with Coincident Development of Syphilis of the Skin and Nervous System," is exceedingly instructive and interesting, and worthy of careful reading.

J. Elcheverry,[43] from the study of "Syphilis and Cancer," believes that: (1) Cancer may follow syphilis by the intermediary of leucoplasia; (2) Cancer may be installed upon permanent or resistant plaques, cicatrices and gummas.

Metchnikoff, Roux and Lassar have at last undoubtedly successfully inoculated a lower animal with syphilis. Their experiments with apes prove that certain of the lower animals are susceptible. Before these experiments all such attempts have proved unsuccessful or unsatisfactory. Now an unlimited field of research has been opened up, and we may be able thus to discover the organism of the disease, if our venerable ancestors procreate in sufficient numbers.

At the Fifth International Congress of Dermatology, Professor Neisser[44] read a paper upon "Attempts to Inoculate Syphilis into Apes," which aroused great enthusiasm. He referred to the work of Metchnikoff, Roux and Lassar; then detailed his own results. A chimpanzee of from one to three years old was chosen, and was given serum by injection from a patient with secondary syphilis. These injections were continued at slightly irregular intervals from October, 1903, to June, 1904, and at the end of the period 442 c.c. of the syphilitic serum had been injected without producing any signs of syphilis. A week after the last injection several inoculations were made on the animal by means of pieces taken from a secondary syphilitic lesion of the tonsil. Some of these inoculations were carried out by means of rubbing scarified areas with the diseased tissue, and others by the actual introduction of the tissue into small pockets made in the skin. The result was the produc-

tion of a chancre in the case of some of the scarified areas, but none in the parts in which the pieces of tissue had been actually introduced The primary inoculation experiment took place on June 17th, and on August 5th a typical secondary eruption was observed. The conclusions drawn were that the injection of even considerable amounts of serum from a syphilitic man produced no ill effect upon the chimpanzee, although there was time enough for the production of secondary syphilis before the inoculation experiments were carried out. Secondly, that this exhibition of serum had no effect in producing an immunity to the succeeding inoculation; and, therefore, those observers are supported who see in Colle's law the infection rather than the immunization of the mother, and that no grounds exist for the belief in the transference of immunizing substances from the child to the mother. As far as one can judge in a hairy animal, successful inoculation of syphilis on the chimpanzee was obtained. Neisser also criticised some of Metchnikoff's deductions as to the immunization of chimpanzees by inoculation from nodules produced by syphilis in a macaque, on the ground that not every inoculation into a chimpanzee is successful.

He was followed by Prof. Metchnikoff, who stated that he had now had successful results from the inoculation of orangs and gibbons. He had also determined the facts that the virus did not pass through the Berkefeld filter, and that adding glycerine to it did not destroy it. He considered chimpanzees very susceptible to syphilis, and that the macacus sinicus was probably the best animal for attenuating the virus. He thought that those apes which showed the least significant symptoms of syphilis after inoculation would probably prove the best from which to obtain a protective serum.

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LARYNGOLOGY AND OTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Increasing interest in laryngology and otology has continued throughout the year. The number of articles published being so large, it will be possible to touch only briefly on the most important of those that have been brought to the notice of the reviewer.

While there have been no startling discoveries chronicled, it is worthy of notice that an effort is being made to establish the relative values of some of our present methods. Such subjects as the preparation and after treatment of the patient for intra-nasal operations, which had been heretofore considered far too trivial by the majority of writers, have received special consideration. The London Laryngological Society chose these subjects for a general discussion. The same subject, when brought before the German Otological Society at Wiesbaden, was discussed by the majority of members present.

These discussions reveal that there is a decided difference as to the many details of management, but the majority agree that the nose is better left alone after operation; a healthy wound should not be disturbed by unnecessary local applications. The question as to packing the nose after intra-nasal operations is far from being settled. Many authors condemn the use of the plug, while an equally large number advocate a brief period of packing.

In last year's review considerable space was given to the subject of hay fever, especially to the researches of Prof. Dunbar, of Hamburg. During the past year he has added very little of practical value. In a recent review[1] he states that the results accruing from the use of antitoxine are far superior when the serum is used strictly as a prophylactic, it being very difficult to stop a severe attack of hay fever by using the antitoxine as a curative agent. The average success, according to the statistics of several hundred cases, seems to be between 60 and 70 per cent. It has been proven that the antitoxine part of the serum is entirely in the globulin. Experiments are now being conducted with an antitoxine from which the albumen has been eliminated, in order to find out if the antitoxine can be used hypodermically without producing any irritation. Dunbar is also engaged in the manufacture of an antitoxine to be used in the prevention and treatment of autumnal catarrh, prevalent in this country. The pollen of the golden rod and rag weed has been selected for this purpose. The author hopes to have a more effective serum than that furnished during the past year.

The experience of Braden Kyle in the chemistry of the saliva and nasal secretions in relation to hay fever was given in last year's report. His work along this line during the past year[2] has persuaded him that in some cases the causes, direct or indirect, of local irritation in the nasal mucous membrane are brought about by chemic change in the constituents of secretion of the mucous secreting glands. He has found in many instances an excess of the sulpho cyanides and the ammonium salts in the saliva and nasal secretions. When these secretions are exposed to the air free ammonia is liberated, which Kyle believes in many cases to be the cause of the attack, the symptoms produced being identical with those of the inhalation of ammonia fumes. By rapidly changing the reaction of the secretions, either from acid to alkaline or from alkaline to acid, or rendering it neutral, he has been able in many instances either partially or wholly to cure the attack. According to his experience, treatment based on this view from 80 to 90 per cent. of all hay fever cases can be relieved or cured.

In the report of 1903 the theory of Fink as to etiology of hay fever and his method of treatment was given. In a recent report[3] he discusses the antitoxin of Dunbar, and states that it does not and cannot have any action at all. Fink believes that the attacks are directly caused by some irritant agent of which grass pollen is the most common. The nasal symptoms being due to an irritation of the nerve endings of the trigeminus, involving principally the secretory fibers in accessory cavities of the nose, the antrum being the main seat of the trouble. The writer states that he has found aristol to cure all forms of nervous coryza, including hay fever. He blows the aristol through a thin curved canula which he has passed into the antrum through its natural opening. This he claims can be done in about 95 per cent. of the cases. The application is made every day for three days, after which the attacks become less frequent and milder. When there is a recurrence the insufflation is repeated.

Alexander Francis, in his recently published work on asthma in its relation to the nose, presents clinical data of 402 cases. In most of these cases he was able to demonstrate some abnormal condition in the nose, and on removal of this complete relief was obtained. He acknowledges only about 4 per cent. of failures. Interesting in this connection are three cases reported by Rethi[4], in which attacks of vertigo and paresis of the right lower extremity were brought about by tamponing the nose. These symptoms all disappeared promptly after the tampons were removed. Rethi does not regard these as reflex symptoms, but that this symptom complex was brought about by disturbance in the blood and lymph circulation at the base of the brain. Makuen[5] believes that it is reasonable to suppose that some of the most serious mental and cerebral diseases may be of nasal origin. Many of the so-called neuroses may be explained on the theory of faulty respiration and impaired cerebral

circulation, due to direct intranasal pressure and the absorption of toxic catarrhal products.

The question concerning the etiology of deviations of the septum is still unsolved. Freudenthal[6] examined 814 crania of aborigines from all over the American continent and found that the total number of deviated septa amounted to 264, or more than one-third showed a pathological condition. This disproves what was formally believed, that symmetrical septa were the rule in primitive types. He holds as the most plausible explanation the one given by Chiari; most human beings are asymmetrical; this asymmetry is naturally more evident where both halves of the body join together as in the septum of the nose. On the side on which the growth is strongest more tissue will develop and a slight cavity will take place. There is still no unanimity as to the best method of dealing with deflections of the septum. The submucous resection of the septum, or the so-called "window resection" of Krieg, is rapidly gaining in favor; its most ardent admirers in this country are Freer, of Chicago, and White, of Boston, while Hajek[7], Mensel[8], Zarniko[9], Mueller[10], are its warmest supporters in Germany. The operation of Moore seems to be the one most often employed in England. Gibb and Miles[11] favor the operation of Ash.

Nothing especially new as to the etiology or treatment of ozena has been brought to our notice. Thiesen[12] inclines to the view of Gruenwald, that sinus disease causes a considerable percentage of the cases. Suppurative processes in the accessory sinuses are frequently present in certain of the infectious diseases of childhood, and for that reason the infectious diseases must be considered possible etiological factors of ozena. Siziemsky[13] and Tarnowski[14] report success in the treatment of this affection with diphtheria antitoxine. The former collected 110 cases treated by this method. Of these cases, 22 per cent. were permanently cured, 6 per cent. almost completely cured, 37 per cent. improved and 24 per cent. temporarily improved. In 8 per cent. the result was uncertain because the treatment had been abandoned too early, and in 3 per cent. the results were negative. Siziemsky believes that the theoretical basis of this treatment should not be looked for in the similarity of the germ of ozena to that of diphtheria, but in the similarity of the toxines of these two affections in a chemic sense. Fliess[15] reports twelve cases treated by sub-mucous injections of paraffin. Thirty-two injections in all were made. The results amounted to practical cures. Stella[16] also reports success with the latter method. Bronner[17] has pointed out a distinct relation between ozena and gastritis. The offensive nasal discharges, loaded with bacilli, passing into the stomach causing a fatty degeneration of the glandular elements. Jurgens[18] reports a death following ozena. The direct cause of death was a meningitis, which had its origin in the suppurative process in the ethmoid.

With a view to determining the mode of origin of nasal polypi,

Yonge[19] has made some careful microscopic examinations of the nasal mucous membrane during the various stages of polypi formation. His conclusions are: (1) In the majority of instances mucous polypi are probably consequent on and certainly coincident with inflammation of the mucous membrane of the nasal cavity. (2) The primary mechanical process is a localized edema of the inflamed mucous membrane, which edema, on account of certain structural peculiarities of the lining membrane, does not in the great majority of cases develop in any intra-nasal area, but in a portion of the middle turbinal and of the middle meatal region. Analogous structural peculiarities are present in the mucous membrane of some of the accessory sinuses. (3) The determining cause of edema in the regions specified is the degeneration and cystic dilitation of the mucous glands. (4) The particular shape which polypi usually assume, their number, probably the appearances of recurrences in some instances and the special peculiarities of these growths are due to the œdematous mucous membrane being thrown into folds and to the normal folds becoming œdematous. Certain of the folds quickly increase in size by the absorption of serous fluid and favored by gravity, and finally present the appearance of ordinary mucous polypi. (5) The "polypoid" outgrowths which take origin on the inferior turbinal and more rarely on the septum, generally differ markedly in microscopic structure from mucous polypi, and, although they claim a common inflammatory origin, these conditions are distinct, especially on account of the dissimilar structure of the nasal regions from which they respectively take origin. Yonge is arranging to conduct some experiments with a view of producing mucous polypi artificially in animals on the basis of the causative influence of glandular changes.

The accessory sinuses have received their usual attention. Kaiser[21] has demonstrated that there is an intimate relation between the blood supply of the mucous membrane of the antrum, the periosteum of the alveolar processes and the teeth. The blood vessels belong to the same system and anastomose very freely. He thus accounts for the frequent association of antral suppuration with carious teeth. A number of valuable papers on the diagnosis and treatment of sinus suppurations have appeared during the year. Notably those by Killian[22], Tilley[23] and Barens[24]. The Caldwell-Luc operation for chronic suppurations of the maxillary sinus with a large counter opening of the nose, continues to give the best results. The Killian operation has, according to Luc[24] and Eschweiler[25], given the best results in chronic suppurations of the frontal sinus. Coakley[26] has described an easy method of entering the sphenoidal sinus for diagnostic purposes. His method is to spray the anterior nares with a solution of 2 per cent. cocaine in a 1-10000 solution of adrenalin chloride. At the end of five minutes this is repeated. An applicator wound with cotton is then dipped in a 10 per cent. solution of cocaine and passed between the middle turbinate and the septum to the

posterior limits of the nares. The nose is next irrigated with sterile normal saline solution to remove as much of the secretion as possible.

Inspection of the nares, both anteriorly and posteriorly, is next made for the purpose of detecting any remaining secretion. The region between the middle turbinate and the septum is repeatedly cleansed with a cotton wound applicator until all secretion has been removed. A thin flexible applicator, curved slightly upward for about three-quarters of an inch, is tightly wound with cotton. This is passed between the middle turbinate and the septum until it reaches the anterior surface of the sphenoid bone. The applicator is then moved from place to place until it is found that the instrument suddenly passes through an opening into a cavity of the depth of half an inch more or less. The diagnosis of a diseased sinus is made when one or more of the following conditions are observed: 1, On withdrawing the applicator and rubbing the cotton on a slide a microscopical examination shows the presence of pus; 2, if muco-pus is seen at the upper part of the chasm, this having been forced from the cavity by the instrument; 3, the feeling at the end of the instrument as if the cavity had a soft, velvety or pulpy lining.

Headache from disturbance of the air pressure in the accessory sinuses of the nose is, according to Robertson, not so rare as might be supposed. The cause of the headache is due to a lack of pressure in the sinus. This diminution in pressure is caused by obstruction to the ingress of air to the particular sinus by closure of its natural orifice. For instance, the middle turbinate may be swollen from inflammation, the swollen body obstructs the sinus, so that the cavity is shut off from the nasal chamber. The imprisoned air loses its oxygen from absorption, the pressure on the mucous membrane is lessened by rarification of the air contained in the cavity. This causes a swelling of the mucous membrane in the sinus. The same condition existing here, as in non-suppurative inflammation of the ear, caused by occlusion of the eustachian tube.

A distinct relation of many diseases of the nose to those of the eye, is pointed out by Schmigelow[27]. In sixty-three cases of accessory sinus disease there were seventeen eye complications. Halasz[28] and Carbone[29], report similar experiences. Coffin[30] and Levy[31], have shown that there is a distinct relation between diseases of the upper air passages to those of the stomach.

More evidence as to the relation of tonsilitis to rheumatism has been brought forth. Miller[32] reports a number of cases of rheumatism preceded by tonsilitis. He urges the necessity of the care of the throat, and advises that the salicylates be given all through the attack, and continued for two weeks after convalescence has begun. Jordan[33] highly recommends the administration of the sulphate of quinine in tonsilitis. He believes it is as much a specific in this disease as it is in malaria. He also claims that quinine is of value as a diagnostic agent in differentiating tonsilitis from diphtheria and scarlatinal anginas, as the quinine

does not exert any influence on the last two. The quinine is given only at night, a half grain at seven and a half grain at seven thirty. The patient will be without fever on the following morning, and by evening will have fully recovered. Myles[34] advises operative treatment with a view to the prevention of cervical adenitis. He advocates the thorough removal of the bases of all tonsils associated with continued and decided cervical lymphoid enlargement. The modern trend of opinion favors the thorough removal of the tonsils instead of merely clipping off the protruding portion, especially in adults. Winkler[35] has discarded the tonsilitome in children as well as adults. Pynchon[36] advocates the cautery knife. Harmon Smith[37] discusses the different causes of severe tonsilar hemorrhage, and finds that the Mikulicz-Stoerk tonsilar hemostat to be the most effective instrument for controlling these hemorrhages.

Another death following the removal of adenoids has been reported by Burger[38]. The case was that of a child eleven years of age, which was suffering from a leucæmia of a lymphatic form. He reports a second case, in which a lucæmia was suspected, owing to the pale and cyanotic appearance of the pharyngeal tonsil. The child died some weeks later, and the autopsy confirmed the diagnosis. These cases are the first of the kind reported in the literature of adenoids. Jarecky[39] emphasizes the fact that adenoids exist in infants, and that an early operation saves the patient from the defects caused by ignoring their presence. He reports five cases in which the diagnosis was made and the adenoids removed with a curette, the youngest being only eight days old. Smye[40] has observed that there is a marked physical improvement in children in whom the adenoids have been removed, even when they still continue to be mouth breathers. He believes that the adenoid secretions have a deleterious influence on the digestion, which ceases when the adenoids are removed.

The subject of laryngeal tuberculosis has received an unusual amount of attention during the past year. Krieg[41] compares the present status of the surgical treatment of laryngeal tuberculosis with that of ten years ago. At that time energetic surgical treatment was generally employed. Since that time the majority of laryngologists have gradually given up radical surgical procedures and confine themselves to local disinfection, while a few employ the galvano-cautery. Krieg is an enthusiastic advocate of the galvano-cautery. The advantages claimed for it over cutting instruments are, that all points in the larynx can be reached with it, there is no bleeding and only a slight reaction occurs. Mermod[42] is also a champion of the galvano-cautery; he believes this to be the ideal form of treatment. He has obtained definite cures even when the state of the larynx appeared desperate. Krause[43] is also an advocate of radical surgical procedures. He prefers cutting instruments and ascribes the many failures to faulty technic. Stein[44] reports success in two cases in which

he performed thyrotomy. Lochhard[45] and Gallagher[46] advocate the local use of formalin. They claim that formalin is not only equal but superior to lactic acid, it being by far the most successful remedy in infiltrative cases. In cases in which there is hyperemia and also a hyperesthesia, Solly[47] claims there is usually a simple laryngitis and if the nose is investigated a rhinitis with some obstruction may be found. Even when the laryngitis is tubercular and the nose and naso-pharynx is diseased they should be treated as radically as the case demands and the general condition of the patient permits, there being practically no danger of tubercular infection of surgical wound. Solly advocates the curetting of tubercular ulcers, but the use of the curette should be preceded by cauterization of the ulcer by pure lactic acid.

The most important contributions to the literature of malignant diseases of the larynx are those by Semon,[48] Glueck[49] and Delvan.[50] Surgical treatment alone offers hope of a cure. The x-ray and other radiants are so far, a disappointment. The relative values of the different methods proposed for the treatment of laryngeal cancer is discussed by the different authors. The endo-laryngeal removal of intrinsic cancer has only a few advocates, namely: Frankel, Juraz and E. Meyer. Semon[48] says the intra-laryngeal method is, from its very nature, unsuitable for the radical removal of malignant new growths of the larynx. The British school of laryngologists consider the operation of thyrotomy to be ideal in these cases. Hemi-laryngectomy comes into question only when it is found, after opening the larynx, that mere thyrotomy will not suffice. Total laryngectomy should be exclusively reserved for extrinsic and those cases in which the disease has progressed too far to be eradicated by milder measures.

Immediate tracheotomy in cases of foreign bodies in the bronchi is advised by Nehrkorn.[51] No time should be wasted on bronchoscopy.

The efficacy of the treatment of acute otitis media by aseptic drainage is shown by Gradle.[52] The principles of his methods are paracentesis as soon as the diagnosis is made, and continuous absorption of the discharge by an aseptic gauze drain in the meatus, and a large dressing over the auricle. The external gauze pad is changed as soon as moisture shows, while the tampon may be left from twenty-four to forty-eight hours at a time. The character of the discharge is taken as a criterion as to the efficacy of the treatment. In the milder cases, which either perforate spontaneously or are punctured within the first or second day, the discharge is always serous. The change from serous to purulent secretion seems to depend mainly on insufficient removal of the fluid. When successfully carried out, this method has yielded the author the quickest results.

That the rhodan reaction of the saliva of ear cases is of diagnostic value is proven by Jurgens.[53] He concludes from his findings in forty-nine cases: (1) That when a decided rhodan reaction can be obtained

from the parotid saliva, the ear on the same side is normal or only very slightly involved. (2) A negative result in ear disease proves the affection to be a severe one, providing other diseases can be excluded. (3) A weakening of the rhodan reaction shows, according to the grade, more or less involvement of the corresponding ear, and can be regarded as a good criterion as to the severity of the disease process. Accordingly, the reaction may be absent or present in acute or subacute cases. (4) If the reaction returns during the course of a middle ear affection, it shows the benign course of the disease, or if the reaction should disappear the course of the disease can be regarded as unfavorable. (5) If in middle ear inflammations the process has apparently subsided, and the discharge has ceased, and there is a negative reaction, it shows that nerve structures in the middle ear have been destroyed, or that the process will soon be active again. When there is a decided positive reaction, the proof is established that the process has subsided. (6) That the rhodan reaction can be made in cases where an otoscopic examination is impossible, as in the cases where the canal is occluded; it then becomes a very valuable diagnostic and prognostic aid. (7) The presence of ptyaline in the saliva is not dependent on the function of the nerves in the middle ear. Ptyaline was always found where no trace of rhodan could be obtained.

In order to determine whether in the majority of cases of acute otitis media are better treated without performing paracentesis, as claimed by Zaufal and Piffl. Burkner[54] carefully observed forty-four cases treated without a paracentesis and compared the results with the cases in which an early paracentesis was done when there was severe pain, fever, a reddened and bulging drum membrane. He found that when an early paracentesis was performed the disease ran its course in about one-third the time, the suffering of the patients was greatly lessened and serious complications less frequent.

The value of lumbar puncture in the treatment of aural affections, vertigo in particular, is noted by Babinski.[55] He has performed lumbar puncture in 106 cases of aural disease. Among these were thirty-two with vertigo. In twenty-one cases very satisfactory results were obtained, while in eleven cases the results were negative. Seven of the cases remained well for six months and one for thirteen months. Tinnitus was found much more rebellious to treatment than vertigo. In ninety cases there were thirty in whom the trouble diminished appreciably or disappeared. Deafness was still more rebellious, only in thirteen out of one hundred was there any improvement in the hearing. Lake[56] reports a case in which he removed the semicircular canals in a case of unilateral vertigo. The patient, a woman aged twenty-one, had been a subject of aural vertigo, combined with sickness and vomiting, with gradually increasing deafness for the past five years. In spite of all treatment these attacks grew worse. Under a general anesthetic, the

mastoid was opened in the ordinary way, and after removing the malleus and incus, the semicircular canals were removed with a burr and a medium-sized opening was made into the vestibule. The wound was closed by the ordinary method. Considerable shock followed the operation, and for the first forty-eight hours there was marked cerebral irritation. After the seventh day she began to improve gradually until the fourth week, when she was able to go about without falling. There has been no return of the trouble.

In support of the vascular theory of tinnitus, Reik[57] offers his laboratory experience and clinical evidence. His explanation of the mode of production of tinnitus is found in the dilatation of the blood vessels in the tympanum or labyrinth. This permits an increased volume of blood to pass through them, and thus cause the radiation of sound waves, which though small in amplitude and intensity, are so magnified by the proximity of the vessel walls to the terminal filaments of the auditory nerve they become appreciable. He believes that the proper treatment for tinnitus should consist in the employment of remedies calculated to raise arterial tension. Bryant[58] says that tinnitus aurium may be due to any of the changes causing impaired hearing and to nearly all systemic diseases. He gives a very complete classification of all forms of tinnitus.

The employment of serum agglutination in the early diagnosis of tuberculosis of the middle ear is recommended by A. De Simoni.[59] The test consists in obtaining a small quanity of blood serum from a puncture in the finger of the patient by means of a sterilized pipette, and testing the agglutinating powers of this serum upon certain specially prepared cultures of the tubercle bacillus, known as "homogeneous cultures," prepared according to the method of Arloing. Equal quantities of the culture and serum are mixed in a tube and allowed to stand in room temperature from four to six hours. If a flocculent deposit takes place the reaction is positive; if the contents of the tube remain unchanged the reaction is negative, and if the sediment is scanty and the cloudiness slight the reaction is uncertain.

Myringotomy as a method of improving the hearing in chronic otitis media (adhesion sicca and sclerotica) is recommended by Stefanowski[60]. He concludes after performing this operation on sixteen cases: (1) Myringotomy is easily performed, practically painless and without danger; it should for that reason be frequently employed to improve the hearing and diminish the subjective noises. (2) In 62½ per cent. of the cases there was an improvement of the hearing, while in 12½ per cent. there was almost a complete restoration of the same. (3) In all cases there was a diminution of the tinnitus. (4) The same effect was obtained on the vertigo. (5) The earlier the operation be performed the better the result. (6) In none of the cases were there any complications. (7) In none of the cases was there a closing of the wound.

Haberman[61] concludes after examining twelve temporal bones from seven patients who were known to have otosclerosis that it is a specific syphilitic disease. He bases these conclusions on his histological findings. The treatment must, for that reason, be antiluetic.

Rules for grafting the facial nerve upon the hypoglossal in cases of peripheral paralysis of the facial nerve are laid down by Alexander[62]. After reporting a case of facial paralysis in which the author grafted the facial upon the hypoglossal, he reviews briefly the literature on all the reported cases. From his study of the cases he concludes: (1) The grafting of the facial is not to be undertaken in any case until all other methods for restoring function have been given a thorough trial. Massage and electricity should be tried for at least six months. (2) After that time all cases are to be operated upon: (*a*) In which no voluntary contractions are present; (*b*) in which no faradic reaction is present; (*c*) in which the galvanic reaction becomes less in spite of the treatment, a result is to be expected in cases which are older than six months, only when there is a trace of galvanic reaction remaining. (3) If there is a prompt faradic reaction, even in old cases, conservative treatment is justifiable.

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OPHTHALMOLOGY.

IN CHARGE OF
JOHN GREEN, JR., M. D.

ANATOMY AND PHYSIOLOGY.

A valuable paper on the circulation and nutrition of the eyeball has been contributed by Leber. The work is very exhaustive and allusion will be made to a few of the more important points only. He denies the existence of an anastomotic system of lymph spaces in the cornea, which is, in his opinion, nourished by diffusion. The influence of the nerves on circulatory and nutritive changes in the eye is small. True arterial pulsation, as found in Basedow's disease and aortic insufficiency, must be carefully distinguished from that observed in glaucoma, which is due to the difference between intraarterial pressure and the resistance encountered by the blood stream. Excision of the superior cervical ganglion is followed by transitory diminution in intraocular tension, the tension rising again before the disappearance of hyperemia, which is often persistent. Leber denies a trophic influence of the fifth nerve on the cornea, and holds that the essential factors in the causation of neuroparalytic keratitis are loss of sensibility and diminution of moisture.

Elschnig contributes a paper on the causation of the light reflex from the retinal arteries. In a case of embolism of the central artery, where pressure failed to elicit pulsation, he noted nevertheless a distinct arterial reflex, thus confirming the original explanation of Jaeger, that the reflex was due to reflection from the vascular walls, and disproving the theory of Dimmer, who attributed the reflex to the axial stream. "Nose-blinking," a curious phenomenon consisting in the contraction of a portion of the levator angulae oris alaeque nasi coincident with the contraction of the orbicularis palpebrarum, has been described by Harman. It affects a strip of muscle extending from the inner canthus to the anterior extremity of the nostril. "On the supposition that the facial nucleus is the proper source of the innervation of the orbicularis palpebrarum, the blink may be explained as a result of a reflex from the conjunctiva by the trigeminal nerve and its nucleus, through the neighboring nucleus of the facial to the orbicularis, which acts as the guard of the conjunctiva."

Henderson and Starling detail the results of experiments on dogs to determine "The Influence upon the Intraocular Pressure of Changes in the Intraocular Circulation." They arrived at the following interesting conclusions: (1) The intraocular pressure is a function of the blood pressure in the ocular blood vessels. (2) The intraocular pressure rises

and falls with the general arterial blood pressure. (3) Stimulation of the head end of the sympathetic causes a preliminary rise of intraocular pressure, due to contraction of the unstriped orbital muscle, followed by a slow fall occasioned by contraction of the intraocular blood vessels. (4) Stimulation of the peripheral end of the divided root of the fifth nerve causes a rise of pressure which is due to contraction of the unstriated orbital muscle. (5) There is no evidence of vasodilator fibers either in the fifth or in the cervical sympathetic nerves.

The problem of the mechanism of accommodation, always a fascinating one, has received particular attention from Grossman, who had the extraordinary good fortune to encounter a case of congenital absence of the iris with a "chalk mark" at the anterior and posterior lenticular poles—truly an ideal subject for experimentation. He found (1) that during accommodation, the anterior surface of the lens became conical. (2) After the instillation of eserin, there was a tremor of the lens, indicating a slackening of the zonula. (3) The ciliary processes move toward the visual axis, but not toward the cornea. (4) The equatorial circumference decreased but remained circular. (5) The anterio-posterior diameter of the lens increased by fully one-third. (6) The anterior surface of the lens approached the cornea, the lens itself not moving forward.

The subject of the anatomy of the orbit has been enriched by the publication of a series of very beautiful plates based on transverse sections of the decalcified orbit in the new born (Rochon-Duvigneaud). Pino advances a new theory in explanation of erythropsia. He states that when white light has bleached the visual purple it is perceived as yellowish green light. Erythropsia is then the complementary after image of this green light.

Congenital Abnormalitities.

Parsons observed a congenital anterior staphyloma in the left eye of a child three days old. There was no anterior chamber and the iris was adherent to the pseudocornea. Intrauterine perforation of the cornea was deemed responsible. Moissonnier and Knapa report cases of hereditary aniridia, one in a mother and two daughters, another in a father and son. A very unusual case of bilateral orbital meningocele is described by De Britto. The tumors were oblong and occupied the whole of the inner angles of each orbit and side of the nose, extending down to the alae nasi. No aperture could be found in either orbit.

Congenital word blindness, although strictly speaking not within the province of ophthalmology, has engaged the attention of several ophthalmic surgeons, notably Hinshelwood, Lechner and Wernicke. It is extremely important that ophthalmic surgeons should be familiar with this type of cerebral defect as the parental assumption of a refractive error leads to the selection of an oculist as the adviser in these cases.

Pathology and Bacteriology.

The bacteriology of the conjunctivitis of measles has been investigated by Schottelius. Fifty-one cases out of eighty showed the orange-red or lemon-yellow variety of the staphylococcus aureus and staphylococcus albus. In severe and fatal cases streptococci were present. A very suggestive paper on the experimental production of inflammations of a phlyctenular nature is contributed by Bruns. The occurrence of phlyctenular keratoconjunctivitis in tuberculous children is a matter of everyday clinical observation. Bruns injected into the external carotid of rabbits a suspension of dead tubercle bacilli, and observed shortly afterward appearances resembling phlyctenular conjunctivitis. The phlyctenules differed from those of the human affection in that they were smaller and did not ulcerate.

Instruments and Apparatus.

Ophthalmometric mires of complementary colors, as red and green, are suggested by Streit. These colors, producing white when superimposed, render possible a more accurate determination of contact. In the operation for cataract, when the iris drops in front of the Graefe knife, the usual procedure is to cut out, despite the accident, thus performing rather a ragged irridectomy. To meet this emergency, Melville Black withdraws his Graefe and introduces a special probe-pointed knife, which is worked up over the iris and out at the counter puncture. The section is then completed in the usual manner.

Therapeutics.

A method to hasten the absorption of corneal infiltrates, which, although not altogether new has of late years fallen into disuse, has been revived by Manolesco. Briefly, it consists of the dropping of hot water at 70° to 80° C. into the conjunctival sack for several minutes twice a day. Two new ocular anesthetics, Stovaine and Yohimbin, have been investigated by De Lapersonne and Claiborne and found not to possess any notable advantages over cocaine. Of the organic silver compounds, argyrol is coming to be regarded more and more as the one indispensable one. Ichthargan, the silver salt of ichthyol appears, according to the reports of Guttman and Falta, to be especially efficacious in the treatment of trachoma in all stages. The introduction of Roemer's pneumococcus serum has marked a real advance in the therapy of hypopyon-keratitis. Zeller was able to substantiate the satisfactory results of Roemer. In one case, however, it seemed probable that the injection bore an immediate etiological relation to the development of a myocarditis. Of great interest is the successful employment by Fromaget of a 2 per cent. solution of gelatin serum as an injection into the skin of the abdomen in a case of relapsing hemorrhage into the vitreous.

Evidence confirmatory of the great therapeutic importance of iodoform rods introduced into the anterior chamber or vitreous in infected wounds of the eye has been adduced by Dimmer.

Ophthalmologists will be pardoned for assuming an attitude of skepticism when they are called upon by Domec to accept his statements as to the therapeutic efficacy of pressure massage in progressive myopia. It should be remembered that similar methods have in the past been enthusiastically recommended and as enthusiastically rejected after thorough test. Visual improvement, the cessation of the myopic process and retrogression of fundus changes are claimed.

It is a little premature to indicate the precise limitations of radiotherapy as applied to ocular diseases. Workers in this field have shown especial activity in applying the rays to cases of trachoma, and the earlier successful results of Mayou have been duplicated. Geyser and others have supplemented the use of the rays by the application to the conjunctiva of a high frequency electrode. The present status of the subject may be summed up as follows: (1) In epithelioma and rodent ulcer of the eyelid radiotherapy surpasses all other methods of treatment; (2) in selected cases of trachoma radiotherapy offers the possibility of rapid cure; (3) the method is worthy of trial in cases of vernal conjunctivitis, tuberculosis of the conjunctiva, orbital sarcoma and carcinoma and in recurrence of glioma after operation; (4) the treatment is without danger to the function of sight.

The widespread popular interest in the subject of radium and its peculiar properties has led to the dissemination (principally through the agency of the popular magazines) of various statements which are distinguished more for sensationalism than accuracy. A paper by London on "The Action of Radium Rays in Relation to Vision," in which the author assures us that by the appropriate application of radium certain types of the blind can again be made to see, excited considerable attention. Shortly after a Viennese lay journal published an article by the same author, entitled "Hope for the Blind," which contained even more extravagant statements. The Viennese authorities then commissioned Greef to go thoroughly into the subject with the view of ascertaining what measure of benefit was likely to be obtainable. The latter is careful to distinguish two effects of radium: (1) Its property of causing certain substances to become fluorescent; (2) the special light rays of radium itself. Upon an absolutely blind eye radium has no effect. An eye blind from opacity of the cornea can be made to read letters of large size cut out of metal and placed behind a fluorescent screen, but (and herein lies the amusing aspect of the whole question) the same result can be obtained by placing the cutouts in front of an ordinary light. In other words, the impression of the letter is gained from the shadow cast upon the cornea by ordinary light.

The therapeutic application of radium in ocular disease is reported by

Williams who gives an account of a case of uveitis and opacity of the cornea in which vision was raised from 1-10 to 5-10. His experience with this agent in trachoma has been limited, but encouraging.

Operations.

It is becoming more and more evident to ophthalmic operators of widest experience that the principles of asepsis laid down for the conduct of general surgical procedures must be modified to conform to the special conditions of ophthalmic surgery. Gifford's paper, "The Essentials and Non-Essentials of Ophthalmic Asepsis," shows very clearly that it is impossible to rid the conjunctival sac of all germs which may, under certain circumstances, become pathogenic. The surgeon who imagines that by rinsing the conjunctival sac with a 1-5000 bichloride solution he is attaining even measurable asepsis is harboring an amiable delusion. The following measures are suggested: Operations in the presence of disease of the tear passages should be preceded by ligature or cauterization of the canaliculi or extirpation of the sac. In lid operations, the skin should be scrubbed carefully with sterile swabs and then painted with a 4 per cent. silver nitrate solution. In all operations on the globe the lashes should be cut off, the roots scrubbed with benzine swabs and then anointed with zinc oxide ointment. The conjunctiva should be irrigated with a freshly sterilized normal saline solution. A simple scrubbing of the hands is deemed sufficient preparation for the surgeon.

Several modifications of the classical operation for the extraction of cataract have been proposed. Chandler has sought to combine the advantages of the simple and combined operations by excising ("buttonholing") a small piece of iris near its root. He thus avoids the unsightly coloboma, preserves the circular shape of the pupil and yet affords drainage for the aqueous. The removal of cortex is also facilitated. On the basis of an enormous experience in India (8,500 operations) Henry Smith recommends extraction of the lens within its capsule, either with or without iridectomy. Visual results are excellent and there is a striking immunity from iritis and secondary cataract. With a view to avoiding secondary operation after extraction Barck makes two crescentic-shaped incisions which join above the center of the lens. The triangular flap thus formed falls forward, the upper portion retracts and a clear central pupillary area results. Quackenboss obviates the danger of infection from a mucocele complicating cataract by entering the puncta with a probe and tying both canaliculi from within out. The multiplicity of the operations for ptosis is evidence of the inadequacy of any one procedure. The latest offering is from Parinaud whose method consists essentially in the passage of a thread in such a manner that the rawed edge of the tarsal cartilage is brought into contact with the superior rectus muscle, with the result that eventually organic union be-

tween the two is established. The operation leaves no external mark; it raises the lid to its normal height when the eye is looking straight forward, provides for its elevation when the cornea is turned upwards, and allows the lids completely to cover the eye on their closure. As a substitute for enucleation of blind, painful, glaucomatous eyes, Froelich advocates trephining the sclera. After laying back a conjunctival flap he cuts out a button of sclera, taking care not to injure the choroid. The deeper tunics burst under pressure of the vitreous. Subsequent immunity from inflammation and pain is claimed.

Traumatisms.

An extraordinary case is related by Scrini. The patient was struck a smart blow on the eye. Whenever he blew his nose (and at no other time) the eye bulged forward and monocular diplopia was observed. Emphysema was absent. Scrini assumes a fracture of the inner orbital wall and a pushing of the nasal mucous membrane into the orbital cavity whenever the intranasal pressure was raised. Geisler details a case of detachment of the iris from the ciliary corona accompanied by partial inversion, *i. e.*, the pigment layer of the iris was directed anteriorly, the anterior surface of the iris resting on the anterior surface of the lens.

Tumors.

The position of chloroma in the classification of tumors has long been a disputed one. Chloroma, as its name implies, is a greenish neoplasm, malignant and usually multiple. Of the sixteen cases in literature, fourteen involved the orbit. Cirincione and Calderaro encountered a case in which the tumor involved both orbits. Secondary tumors were situated in the temporal and thigh muscles and over the sacrum. At autopsy, tumor patches were found on the inner surface of the cranium. Microscopically, the tumors were found to consist of long cells with transparent prolongations, large, many-sided cells, with round nuclei and semitransparent protoplasm, and small rounded cells like leukocytes. In the growing portion of the tumor the capillaries were numerous. The point of especial interest is the fact that the sacral tumors in which the green color was most intense harbored numerous foci of microbes. The authors conclude that chloroma has no claim to a special place in the classification of tumors, and that the green color is probably due to the presence of "accidental" chromogenic bacteria.

A contribution to the prognosis of malignant tumors of the choroid is presented by Hirschberg. Out of forty cases under observation for a sufficient length of time, a little over half were free from local recurrence or metastasis. Deaths from metastasis usually occur within two and a half years of operation. Early operation is imperatively indicated.

Sympathetic Ophthalmia.

The possibility of restoring even a modicum of vision to eyes blind from sympathetic ophthalmia, has hitherto seemed unfortunately remote. It is gratifying, therefore, to note the successful operative devices of Brown and Stevenson. They found that removal of the lens, even when accompanied by the excision of a piece of the iris, was followed by the formation of a false membrane, which failed to yield satisfactorily to repeated needlings. One great drawback in operating on this class of cases is the excessive reaction which is set up by the procedure. These authors found that this reaction could largely be obviated by thoroughly irrigating the anterior chamber with normal saline solution. The formation of a secondary membrane was not prevented, but a single needling resulted in the immediate retraction of this membrane and the establishment of a clear and permanent central opening.

Glaucoma.

Theories in explanation of the glaucomatous process continue to exercise their fascination. Zimmermann assumes that the primary cause is to be found in a difference between the general vascular tension and that of the eye. Decreased blood pressure leads to pulsation in the central artery of the retina, which, in the presence of other factors, leads in turn to venous stasis in the retina, and ultimately to transudation from this structure into the vitreous. The lens is thus pushed forward, the iris is pressed upon by the engorged ciliary processes and finally the root of the iris is applied to the posterior surface of the cornea and the infiltration spaces are blocked. Now ensues a *true* increase of the intraocular tension as opposed to the initial *relative* increase. This theory accounts very well for the occurrence of simple glaucoma without increased tension, as no absolute increase of tension is required to produce cupping of the disk.

As regards therapy, the author considers that as the disease is not purely local the treatment must be in part directed at the general defect and recommends the use of a powerful cardiac tonic, such as strophanthus.

Refraction and Optical Questions.

The operation for removal of the lens in high myopia may be said to have passed the stage of probation, and to have earned for itself a place among accepted ophthalmic operative procedures. The final results have been discussed by Gelpke, on the basis of examination from two to nine years after operation. Of 120 operated eyes, 107 showed visual improvement. The existence of macular lesions is regarded as an indication for operation, as both old and recent fundus changes were apparently improved by operation. Only three eyes were lost from detachment of the retina. Detached retina in one eye is no contraindication to operation on the

other. In fact, the only positive contraindication admitted by Gelpke is an inflammatory chorioretinitis in the equatorial region. The operation of choice is a simple discission.

Allusion was made in the review of ophthalmology for 1903 to a method devised by Holth for the measurement of the refraction, which he called kinescopy. An elaboration of this method (skiakinescopy) is now presented. To be successful, skiakinescopy presupposes tolerably good vision and a fair amount of intelligence on the part of the patient. It is not applicable in severe diseases of the macula and optic nerve, but is of value in estimating refraction in keratitis and irregular astigmatism. A device that promises great comfort to the patient in cases of keratoconus is suggested by Fox. Disks of opaque material, with apertures of various shapes, are placed over the correcting lens, the patient determining, after patient trial, which form of aperture is best suited to his eye. Fox claims great improvement in ability to do near work as well as improved distant vision.

Every ophthalmic practitioner is familiar with cases of asthenopia and eye-strain which are not relieved by the most painstaking correction of the refraction. A certain number of these cases are indubitably dependent on various nasal abnormalities, especially obstructive conditions in the frontal sinus. This particular phase of the subject is commented upon by Fish, who styles his paper "'Hysterical' Asthenopia," in which he has the support of such authorities as Fuchs, Schmidt-Rimpler and Parinaud. Surely a train of symptoms dependent on an obvious anatomic lesion, and relieved immediately and permanently by the removal of the cause, should not be stigmatized as "hysterical." The term "hysterical" was applied to these cases before any definite relationship between the nasal condition and the ocular symptoms had been determined. It would seem that we are greatly in need of a revision of our terminology.

Another possible source of asthenopia and eye-strain independent of refractive error and muscular imbalance, is "the lithemic state," as pointed out by De Schweinitz. Itching, burning and formication of the lid margins; arthritic edema of the lids, appearing just within the palpebral margins; tender spots in the ciliary body, with pin-point ocular pain, are types of symptoms which often yield to the salicylates and aspirin. The existence of a subnormal amplitude of accommodation in a young person should at once raise the suspicion of diabetes.

Eyelids.

A remarkable and unique case of conversion of the entire tarsal cartilage into amyloid is reported by Steiner. The tarsal disease was secondary to amyloid disease of the conjunctiva. Terson describes a peculiar condition characterized by relaxation and atrophy of the skin of the upper eyelids, and called by him "palpebral dermatolysis." In one case

the skin overhung the cornea to such an extent as to interfere with vision. Treatment consists in the excision of a cutaneous fold, and the insertion of deep sutures.

Lachrymal Apparatus.

Primary tuberculosis of the lachrymal sac is discussed by Rollet, who reports nine cases. Chronicity, tendency to fistulous formation, and enlargement of the preauricular and submaxillary glands, are features. Prognosis is good if early radical extirpation is performed. In explanation of the relative immunity of the negro from disease of the nasal duct Santos-Fernandez has shown by dissection that the nasal canal is wider, straighter and shorter than in the white races.

The wisdom of the routine application of the probe in cases of lachrymo-nasal obstruction has been seriously called in question. The disturbance of anatomical relations, which resulted inevitably from the use of large probes of the Theobald type, has brought about a reaction in favor of smaller probes or no probes at all. Risley endeavors to restore the patency of the duct by injecting cocaine and adrenalin. In acute cases he irrigates thoroughly with peroxide of hydrogen and silver nitrate: in chronic cases, with iodine. If absolutely necessary, he probes the duct with Bowman 3 or 4, warning against the use of the smaller sizes, which, even in experienced hands, can easily create a false passage. Byers does not approve of probes at all. After clamping the upper punctum, he introduces a snub-nosed syringe into the lower punctum, and endeavors to shrink the mucous membrane of the duct by repeated injections of adrenalin without withdrawing the nozzle. In obstinate cases Schultz proposes obliterating the canaliculi by the galvano-cautery as a substitute for extirpation of the sac. The point of an electrode is introduced four mm. into the canaliculus, where it is allowed to become and remain incandescent for two seconds.

Conjunctiva.

The peculiar affection of the conjunctiva, first described by Parinaud in 1889, and designated in honor of its discoverer, "Parinaud's Conjunctivitis," has engaged the attention of a number of writers during the year. The most exhaustive paper is that by Chaillous, who, in addition to reporting five cases of his own, goes into a detailed review of the literature. It is evident that the disease is not a common one, as the cases reported to date number only twenty. The clinical picture drawn by Chaillous varies in certain particulars from the original description of Parinaud, and should be familiar to opthalmologists in order that future cases may not go unrecognized. Usually one eye only is affected. The palpebral conjunctiva is studded with granulations, which vary considerably in size and color. Between the individual granulations—and this

is a point of diagnostic importance—occur erosions of the epithelium. The preauricular, angulo-maxillary and sub-maxillary glands are enlarged, and, in about one-third of the cases, suppurate. The disease is apparently self-limited, running its course in two to three months. In striking contrast to trachoma, which, in some respects, it resembles clinically, healing takes place without the formation of scar tissue. The glands remain enlarged many months after the disappearance of the granulations. The etiology is dubious, microscopic examination suggesting a process similar to tuberculosis, though animal inoculation has proved negative. The disease with which Parinaud's conjunctivitis is most likely to be confused, is tuberculosis of the conjunctiva. Removal of the granulations by excision or galvanocautery is thought to hasten restoration to the normal.

Cornea and Sclerotic.

Papers on three closely related hereditary diseases of the cornea have been contributed respectively by Spicer, Freund and Fehr. "Hereditary Nodular Opacity of the Cornea," described by Spicer, occurred in two brothers, a sister and a daughter. The cornea presented greyish spots in the anterior layers and centrally, deeper lying greenish spots over which the epithelium was slightly raised. The outer portion of the cornea were clear. The disease is regarded by Spicer as a slowly progressive degeneration. Pathological examination has shown the presence of deposits of hyaline material and urate of soda. The anterior layers are edematous and Bowman's membrane is absent. Freund observed in two families fifteen cases, extending over four generations of what he terms "trellised opacity of the cornea." The disease commences shortly after puberty by a gradual diminution of vision, accompanied by dazzling, due to the irregular refraction of the cornea. Superficial greyish points lying just beneath the epithelium and arching it up, occupy the central portion of the cornea. In addition, there is a diffuse corneal opacity which, on magnification, appears as a trellised network. The edge of the cornea remains free from the disease. The trouble either comes to a standstill after the fortieth year or a corneal abscess results from the degeneration and abrasion of the corneal epethelium. Ultimately a dense scar is formed. In either case, vision is very greatly impaired. Most of the patients are free from hereditary taint, are, in fact, quite robust. Fehr describes a slowly progressive non-inflammatory opacification of the cornea, beginning at puberty, and rendering the subject unfit to earn a livelihood at about the age of thirty. The opacity consists of scattered white points and spots of various forms, between which were very fine greyish punctations. Central opacities are superficially situated, those toward the periphery are deeper. Peripherally, the cornea is but little affected. The corneal surface is smooth.

even, and of normal polish, a fact which serves to distinguish this type from the two just described. Fehr prefers to classify these three degenerations under the single heading of "family spotted degeneration of the cornea," regarding his cases as the third variety of which the nodular and trellised forms are the first and second.

Iris and Ciliary Body.

Ewetzky contributes a very interesting paper on "Syphiloma of the Ciliary Body." The differential diagnosis offers much difficulty. A tumor forms in the ciliary region accompanied by symptoms of severe iridocyclitis. The cornea opacifies and becomes vascular. Hypopyon is observed in 25 per cent. of all cases. The disease may undergo retrogression, but is very apt to perforate subconjunctivally, ending in phthisis bulbi. In 78 per cent. of eyes attacked useful vision was destroyed.

Lens.

Grilli's investigations of the freezing point of the blood and urine in patients suffering from senile cataract has led him to the following conclusions: "From insufficient elimination of solids *via* the kidneys, and the consequent rise in osmotic tension to be found in the presence of senile kidney, in the blood and in the fluids which owe their origin to the blood (*e. g.*, the aqueous humor) the lens, which is, under normal conditions, nourished by means of endosmosis, being now surrounded by fluid of increased osmotic tension, is obliged to yield up some of its fluid and is consequently 'dehydrated'; this then produces cataract."

Zur Nedden offers, in explanation of the star-shaped opacity occurring in the posterior cortex after contusions and perforations of the cornea and anterior capsule, that the lens is dislocated *within* its capsule, thus creating a lesion of the posterior capsule, which allows vitreous to enter.

Choroid and Vitreous

Primary atrophy of the choroid—atrophia alba choroidea—is the subject of an interesting paper by Cuperus. The patient was an old man whose vision had been failing for forty years. The peripapillary and macular regions were whitish, gradually shading into brown at the periphery. At the posterior pole the choriocapillaris were chalk white and empty. Black specks were scattered throughout the fundus. The papilla was excavated and grey and the arteries were diminished in calibre.

Retina.

It is well known that hemorrhages are to be found in the eyes of newborn children in from 10 per cent. to 41 per cent., according to the statistics of different observers. Coburn has endeavored to ascertain whether such hemorrhage can account for the poor vision which is some-

times present in eyes without any ophthalmoscopic alterations. In the majority of cases (his material came from a maternity hospital) the hemorrhages were near the equatorial region, a finding at variance with that of former observers. They occurred for the most part in the nerve-fibre layer of the retina. No definite causative relation between these hemorrhages and congenital amblyopia was made out.

In two cases of injury to the retina, Fridenberg observed fine, white, hairlike striations of equal calibre following the usual course of the nerve fibres and originating from the site of the injury. They were regarded as sclerosed nerve fibres.

Optic Nerve.

Over one hundred cases of affection of the chiasm have been reviewed by Gehrung. The involvement is secondary to syphilis, malignant growths, tumor of the pituitary body, tuberculosis, aneurism, cysts, fractures at the base and atrophic changes. There is atrophy of the disks, which is usually more marked on one side. Visual failure may at first be unilateral. In progressive lesions, the uncrossed fibers become involved, and the blindness is total. A distinguishing feature is the absence of the hemianopic pupillary reaction.

Muscles.

An extraordinary case of congenital defect of ocular movements, combined with peculiar associated movements of the eyes, is reported by Werner, and is worthy of extended notice. There was bilateral ptosis and rotary nystagmus. When the left eye fixed, the right turned outward and downward. On attempting to look down, the left eye turned down, but the right turned outward to the canthus. On attempting to look up, the left eye turned up a little, the right returning to a central position. Both eyes possessed normal mobility to the right. To the left, the left eye moved almost to the outer canthus, the right only to the middle line. The paralyses were made out as follows: Paralysis of the inferior obliques; right extrinsic ophthalmoplegia; partial loss of power of the muscles on the left side supplied by the third nerve; paresis of the external recti.

Orbit.

Petit has given a good account of relapsing spontaneous hemorrhages of the orbit. Sudden irreducible exophthalmus, accompanied by edema of the lids, chemosis and restricted motion are the main symptoms. The diagnosis is confirmed by orbital puncture. In most of the reported cases vascular lesions with kidney changes or hemophilia have been coincident.

Relations with Medicine.

According to Antonelli, nearly all infectious diseases are capable of giving rise to optic neuritis through direct toxic action on the nerve. The disease may assume the form either of a papillitis or a retrobulbar neuritis. Generally speaking, the prognosis is good, but prolonged complete amblyopia renders the visual outcome rather dubious. The diagnosis may be uncertain in the retrobulbar types, in which cases a determination of the light sense will be of material assistance. Influenza may give rise to both forms. A subacute papillitis, resulting in partial atrophy, is occasionally observed in typhoid. Malaria may give rise to both types. Diphtheria, erysipelas, parotitis, measles, scarlatina, variola and varicella are rarely responsible. The optic neuritis of syphilis is, according to Antonelli, divisible into three types: (1) Pronounced papillitis, a late secondary manifestation of malignant syphilis. (2) A subacute type, with slight ophthalmoscopic changes occurring in the tertiary stage of cases insufficiently treated. (3) Optic neuritis in infants the victims of congenital syphilis.

The ocular symptoms of rheumatoid arthritis have been investigated by Beaumont. The feature of special interest is a constant contraction of the visual field, which is explained by the existence of retinal vasomotor phenomena. Ephemeral ocular palsies and ptosis, with a high degree of conjunctival and corneal anaesthesia, are other symptoms. Trantas has observed in thirty-one out of forty-one cases of measles an affection of the cornea, characterized by the appearance of small gray points in the central superficial layers. The duration of the trouble is less than a week, and is regarded as a true exanthem. Cataract developing during the course of uncinariasis or hook worm disease, has been noted by Calhoun, who suggests that the impoverished condition of the blood may account for the disturbance in the nutrition of the lens.

The mass of literature dealing with the question of reflex disturbances originating in an uncorrected ametropia or muscular imbalance grows greater year by year. The indefatigable Gould has missed no opportunity of trumpeting his radical views. Dr. Gould is thoroughly imbued with the spirit of the reformer, and is intensely sure of the correctness of his views. It is to be feared, however, that his zeal and pugnacity give to his papers a flavor rather polemical than judicial. An attitude which is strongly suggestive of that of the political "spellbinder" may be necessary to arouse to enthusiasm the lethargic mind of the average auditor, but it is certainly not conducive to a calm weighing of the *pros* and *cons*. Doubtless many of Dr. Gould's contentions will in time become part and parcel of accepted medical truth; yet it seems equally certain that many will eventually be relegated to the limbo of medical error. A note in protest has been sounded by some of our most emi-

nent neurologists, as Dana and Sachs, whose opinions the dispassionate seeker after truth will certainly respect.

In this connection a paper by Kilburn on the possible connection between eye strain and spinal curvature is of interest. As is well known, patients with oblique astigmatism tilt the head in order to secure better vision. That this may in certain cases be productive of spinal curvature seems reasonably certain; at any rate the converse that correction of the ametropia results in improvement of posture is unquestionably true. But as Kilburn well says, "the cases are too few in number to permit of dogmatizing on the subject."

Miscellaneous.

The ocular lesions caused by lightning have been considered by Gonin. In two-thirds of reported cases lenticular injuries have been observed. Optic atrophy, which is usually a late complication, occurred in one-third. Frequently there are motor paralysis of the third, fourth, fifth and sixth pairs. Relaxation of the suspensory ligament, retinal hemorrhages, rupture of the choroid and detachment of the retina are occasional appearances. Gonin warns us not to confound these cases with those in which symptoms follow dazzling by short circuit flashes. He believes the principal effects are due to mechanical concussion, only secondarily to electrolytic action.

New Publications.

Some of the more important new publications appearing during the year are: "Collectio Ophthalmologia Veterum Auctorum"—selections from the writings of the most distinguished authors of bygone days, constituting a history of ophthalmic work from the earliest times. Arranged by Pansier. "Text-Book of Diseases of the Eye," by Hansell and Sweet; "A Manual of Diseases of the Eye," by C. A. Veasey; "Squint Occurring in Children," by Browne and Stevenson; "The Eye, Its Refraction and Diseases," by E. E. Gibbons; "Diseases of the Eye," by L. Webster Fox; "Biographic Clinics," Vol. ii, by G. M. Gould; "The Commoner Diseases of the Eye," by C. A. Wood and T. A. Woodruff; "Modern Ophthalmology," by J. M. Ball; "Manual of Practical Ophthalmology," by G. A. Berry; "The Pathology of the Eye," Vol. i, Part i, by J. H. Parsons; "Spectacles: the Theory and Practice of Their Use," by E. H. Oppenheimer; "Handbook of Ocular Therapeutics, by Scrini; "The Ophthalmic Year Book," by Edward Jackson; "The Optical Dictionary," by C. Hyatt-Woolf.

EDITORIAL COMMENT.

ANNUAL MEDICAL PROGRESS NUMBER, 1905.

In a certain well-known literary monthly journal, the editor is accustomed in each January number to address his readers in a very confidential and personal way, telling them of the literary feast that is being prepared for them and to which they will be invited each month in the year to come. In the January number of the INTERSTATE MEDICAL JOURNAL its readers are taken into the editorial confidence not with promises of what is to come, but with explanations of the things that have passed. Not only the feast that has appeared in the journal itself are the readers asked to attend, but to one in which the best dishes of the world's cookshops are spread before them. In a measure the example of the lay monthly is emulated, but the things that have been done are substituted for the things that are to come.

It is certainly no longer necessary to explain the advantage of these annual review numbers nor to dilate upon the labor that has been expended in getting them up. The fact that a certain number of men devote a certain amount of energy in threshing over the literature of a year in order to pick out for the benefit of others that which is best, is a sufficient reason for its existence. Yet to a reflective mind the papers here gathered together suggest many things that have nothing specifically to do with the matter in hand. It is interesting to know that this or that specialty has been enriched by this or that new fact or novel theory, but it is also instructive to speculate upon the deeper meaning of the phenomona which make possible so large an amount of new work and so earest an effort to gather together what is best in it so that a larger medical public may share in it. Matters of this kind and others suggested in a distant way by these papers, may well be the subject matter of the lay sermon to which the readers of the INTERSTATE are invited to listen.

There are at least three tendencies which are of interest in considering these reviews and what they represent in a miniature form. There is the strange and intuitive desire to accumulate new facts; there is an equally strong desire to become acquainted with such facts as are discovered by others and there is a desire, not so definite as either of the first two, to collect these facts and arrange them so that others may know of them. This all appears to be altruism of a most exaggerated form and it would be so if the benefit to the individual were not so much in evidence. There is the satisfaction and strengthening of the investigator, the broadening of mental outlook to the original reader and the requirement of more definite information to the reader of the review. It is to the reader of these reviews that the most lasting result will come

because in the nature of things he will represent the force by which the medical profession as a whole moves forward. So, on closer examination, the immense activity in productive effort which finds its expression in the output of papers all over the world is seen to have a very definite, although an altogether unconscious, purpose.

There is generally found in books dealing with profound problems in a profound way something that may be twisted into a medical application, and as the mind of the physician grows more philosophical with his increasing experience with human life, so increases his ability and his desire to draw from various sources enlightenment for his special task. Frequently from books of a non-medical sort there often come to him points of view which illuminate some of the dark places of his field of thought. The charm of literature to the medical man can be seen from the fact that so often the best of them find in the closing days of their activity, in literature either actively followed or passively enjoyed, their most intense pleasure. In this regard it is well to find in such a book as Shaler's "Neighbor" an application to the subject in hand. The thought is suggested in reading this book that perhaps such an effort as is represented in this January number may be interpreted as a part of the problem which this book so ably attempts to solve. The phenomona of race contact, as studied in the experience of various kinds of peoples in their attempt to live together, form its main theme. The action and reaction of each upon the other and the result of these forces upon the individual suggest that in medicine some similar phenomona may be studied. Personal contact in a large way between physicians of different races is rare and so, as a rule, the work which is being done in different lands under different conditions would remain unknown except to the favored few who could see for themselves. There remains then the contact through literature. It is to be remarked that the problem from a medical point of view is very nearly always the same. There is something universal in disease and with a constant problem the method of its solution becomes all the more interesting for the reason that every one knows something of it, even in its final form. The contact through literature can be well studied through such reviews as are here presented and if the result be in line with that which is gained by human contact, that is by personal contact, then the effort made to write them is not one bit too great. Contact means an increased tolerance, an awakening to better efforts and a desire to emulate the best. This has nothing to do with the personal gain which in each case may be different depending upon the lack in each individual.

A great part of any one's problem in life may be reduced to some personal defect or to a defect in the community in which he lives. How much each one's professional discomfort may be indirectly traced to bad medical conditions is a thing worth considering. It is scarcely to be wondered at that those who dwell in corrupt cities are themselves

affected, not necessarily by becoming corrupt themselves, but in a much more intangible way in the manner of his point of view, in the development of a certain cynicism, a desire for "laissez faire," a certain degree of hopelessness and helplessness. Such a man is a less valuable member of his community, simply because the bad conditions under which he lives slowly and imperceptibly are affecting him as an individual. The medical problem of greatest moment in this city at the present time is the bad condition of the city medical institutions and it is not too much to say that every physician living in St. Louis is today unconsciously affected in a personal way by it. These reviews bring together the work that has been done in hospitals all over the world, and enthusiastically done in places where such work is encouraged and where the most of it is done in public institutions and under public patronage. One cannot help, in reading of this sort of work, becoming impressed by the lack of it in this city where almost two thousand sick are allowed to grow old and die without any attempt being made to enrich medical knowledge by an adequate study of them. This is one of the lessons which this yearly review may teach to the discriminating reader.

With this retrospect the reader is asked to look over the papers here presented and to stop here and there in places where his interest lies. He is asked further to think that there is a great deal more in them than is set down and that, after all, it is this indirect effect of his reading which will be most lasting. That his enjoyment may not be lessened by this talk is the desire and hope of the writer.

BOOK REVIEWS.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN DISEASE. By ALIDA FRANCES PATTEE. Second Edition. Published by the Author. New York City. 1904.

Miss Pattee, who is instructor in dietetics at the Bellevue Hospital Training School for Nurses, has written an excellent cook-book of value in any kitchen, but most useful, of course, to the trained nurse and to the physician himself. The directions are given with enough detail so that one who is not a trained cook can carry them out. The second half of the book is devoted to diet in disease and falls much below the level of the portion devoted to cookery proper. The dietaries, for instance, for diabetes and the obese are absurd. Such matters have no place in a cook-book for nurses, and had far better be left to the physician, if only for the reason that it is always the individual patient who is dieted, never the disease. Any schematic treatment of such a subject can only be productive of harm, and here if ever a little knowledge is a dangerous thing. A number of errata mar the book. Thus, on page 239 ℥ is twice printed for ℨ, an error which would be productive of curious results if not detected. An index adds greatly to the value of the book.

BEITRAEGE ZUR KLINIK DER TUBERCULOSE. Band III, Heft. 1, Wuerzburg. A. Stuber's Verlag (C. Kabitzsch). 1904.

This is a publication exclusively devoted to the subject "Tuberculosis" in all its various aspects. About 4 to 5 numbers form one volume, subscription price of which is mk. 16.

This number contains articles on erythema induration, on tuberculosis and sanitariae on the origin and spread of tuberculosis in two German villages, on affections of thy upper air passages in incipient phthisis and on the early diagnosis of special disease b- means of comparative palpation. The number is a worthy example of this very val uable publication.

NEW METHODS OF TREATMENT. By DR. LAUMONIER. Translated by H. W. SYERS, M. D. Chicago: W. T. Keener & Co. 1904.

This translation of an altogether admirable book which in the two years that have elapsed since its publication has already become a classic in France, deserves to meet with a general welcome. It fills a long-felt need. Most books on materia medica and therapeutics are bulky and unwieldy, because they occupy themselves not only with those standard drugs concerning which the ordinary physician is full informed, and for which he never finds it necessary to consult a book of reference, but also because they devote a great portion of their space to obsolete drugs that are now hardly ever used. On the other hand, information about the newer drugs, for which the practitioner is most apt to consult them, is usually conspicuously lacking. Dr. Laumonier's little book meets just this demand. While far from exhaustive, he offers an adequate and keenly critical treatment of the therapeutic measures that he takes up for discussion. His chapters on mineralization and demineralization, on opotherapy, on serum therapy, on the yeasts, on the nutritive alterants, deserve especial mention. The little volume can be unreservedly commended to our readers.

INTERNATIONAL CLINICS. Volume III. Fourteenth Series. Philadelphia: J. B. Lippincott Co. 1904.

This issue is one of the most interesting of the series. About one-third of the volume is devoted to articles on syphilis. Dr. Ohmann-Dumesnil, of this city, has an article on the differential diagnosis of syphilitic eruptions, illustrated by a large number of extremely beautiful plates. Of the twelve papers of syphilis one-half are by French clinicians, and these stand out from among the rest for clearness of presentation and general interest. Prof. Fournier's articles in particular are delightful reading. The rest of the volume is, as usual, devoted to medicine, surgery, treatment and the specialties. A very interesting article by Dr. Manley, of New York, on "Umbilical Hernia," deserves to be singled out for special mention.